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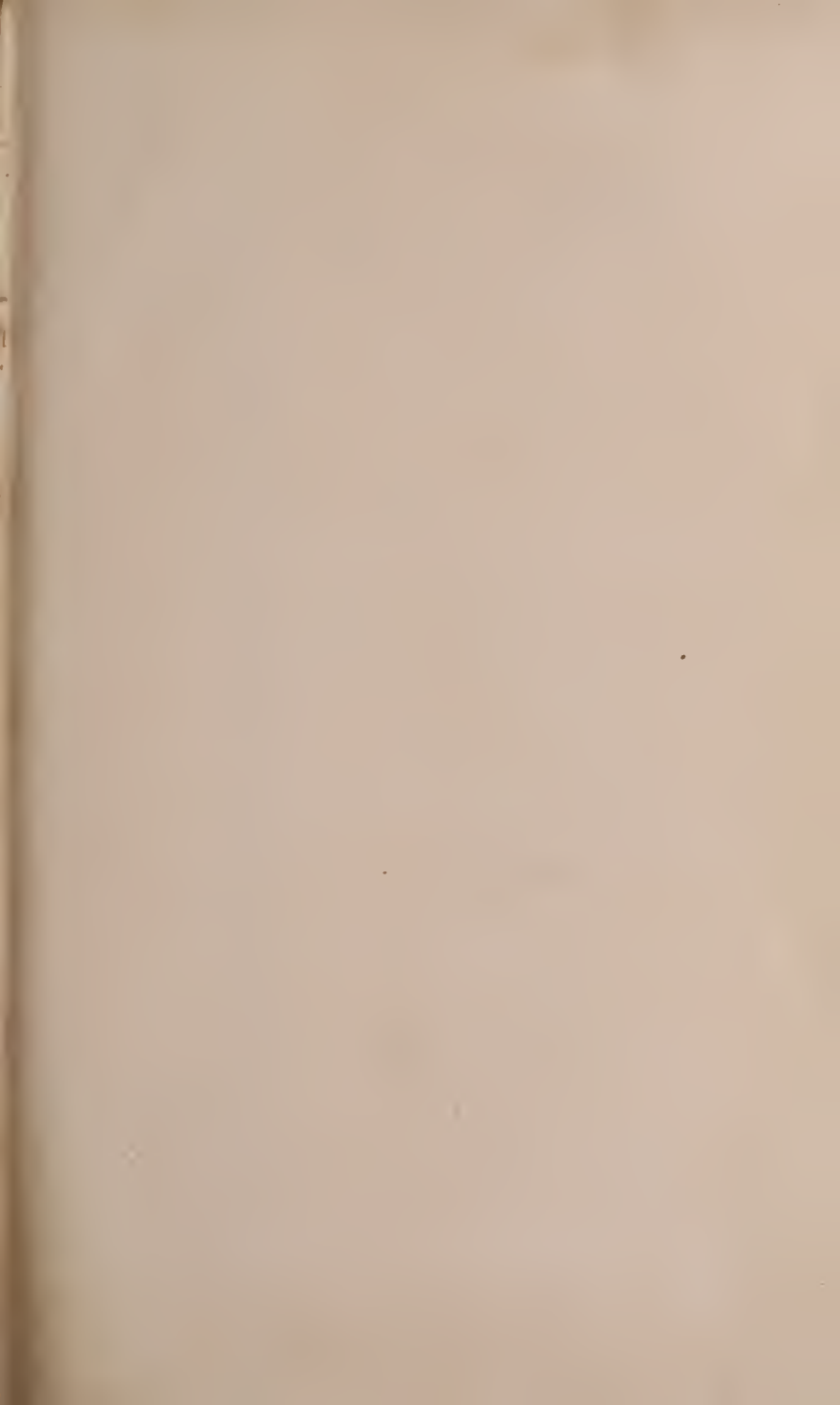
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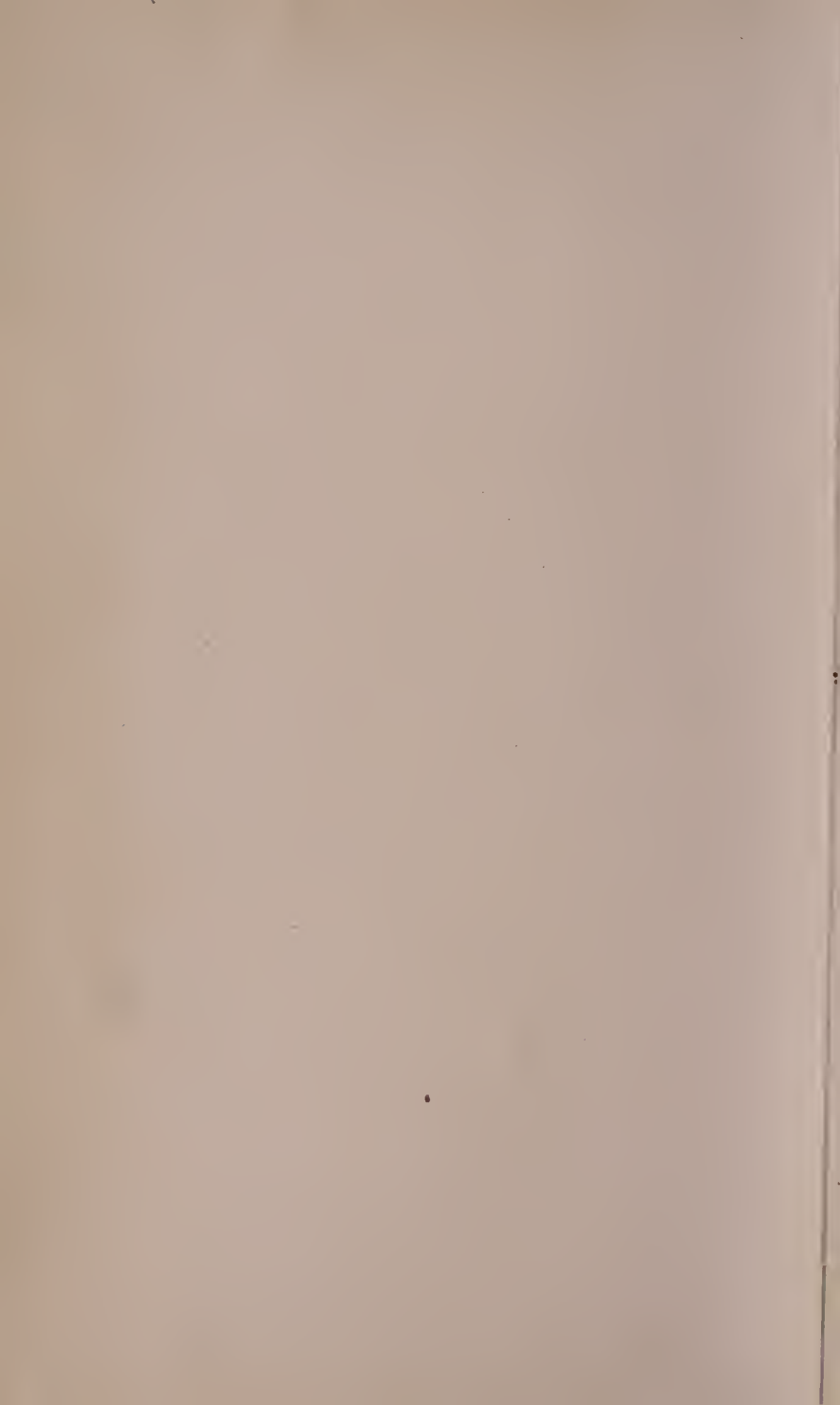
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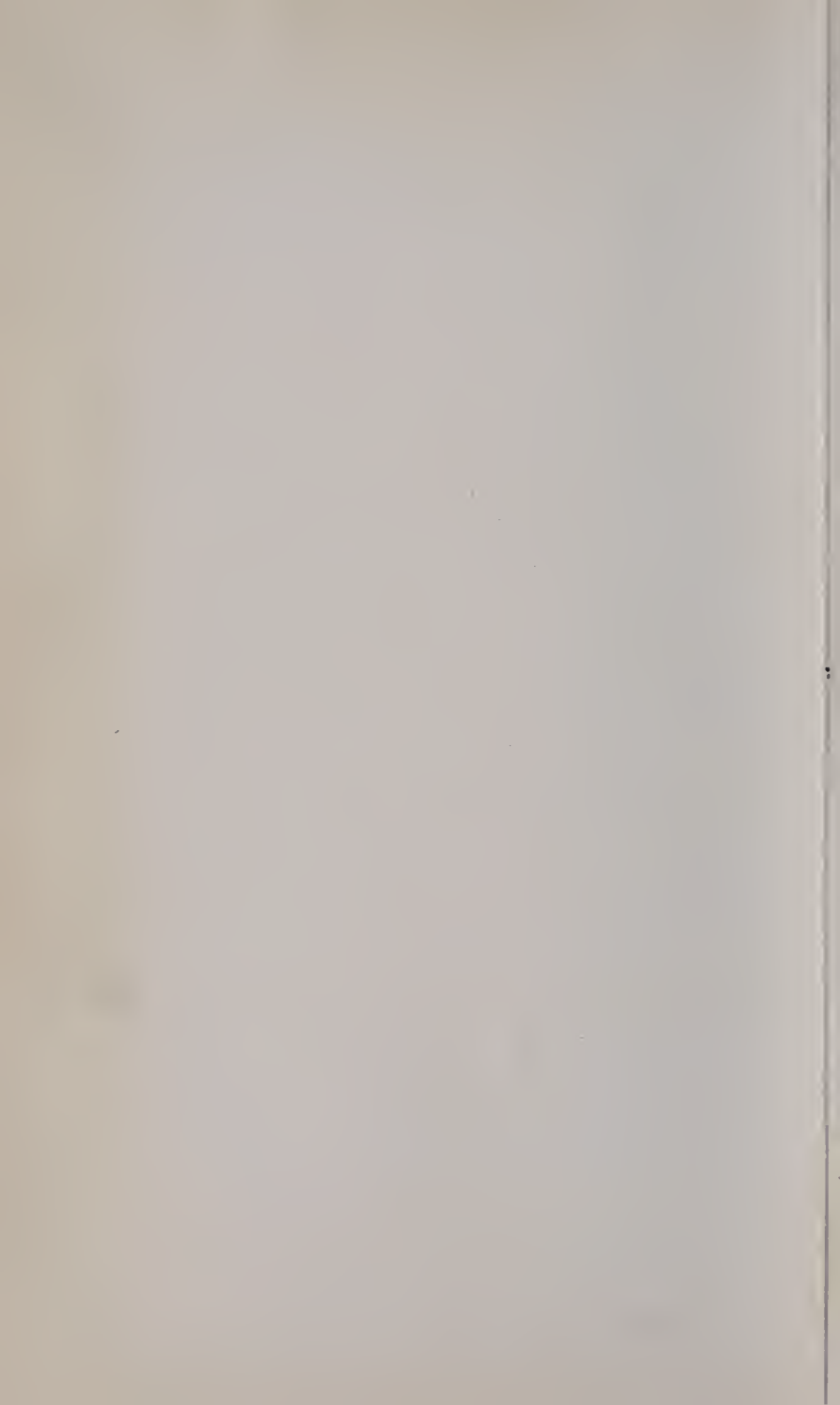
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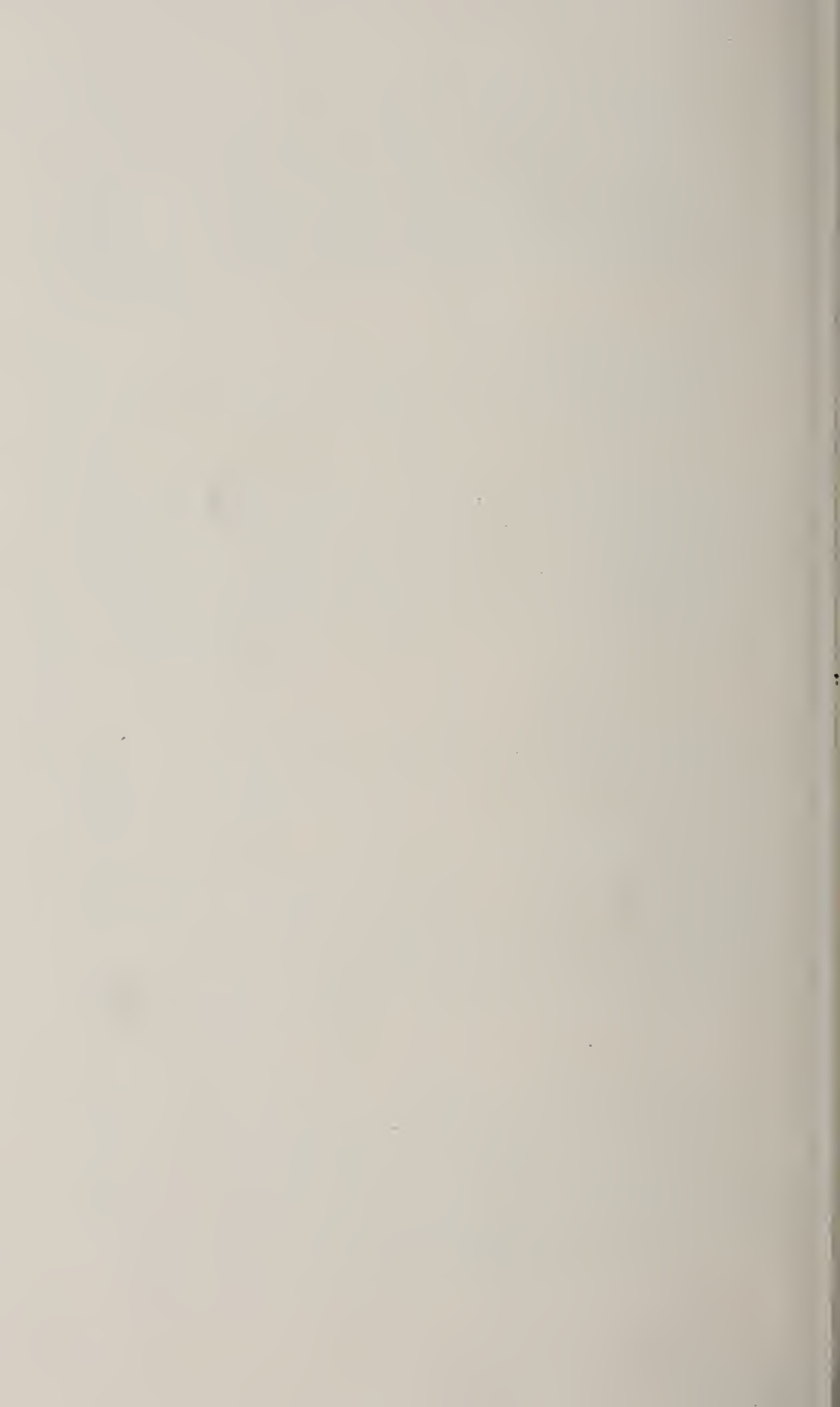
Nos. I. to VII.—1851.

“ It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia* will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted ; and it will die away if they shall entirely cease.”—SIR WM. JONES.

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JOURNAL

OF THE

ASIATIC SOCIETY.

No. V.—1851.

Remarks on some lately-discovered Roman Gold Coins. By Capt. DRURY, communicated by General CULLEN, H. C. Resident, Travancore, through the Hon'ble W. ELLIOTT.

A most interesting discovery of a large quantity of Ancient Roman Gold Coins has lately been made in the neighbourhood of Cannanore on the Malabar Coast, not only remarkable for the numbers found (amounting to some hundreds) but also for their wonderful state of preservation. Many appear almost as fresh as on the day they were struck: the outline of the figures is so sharp and distinct, and the inscriptions so clear and legible. With very few exceptions they are all of gold, and of the age of Imperial Rome from Augustus downwards; several of them being coëval with the earliest days of the Christian era. From what we have been able to learn regarding their first appearance, it seems that a few were brought into the town of Calicut and offered for sale in the Bazaar by some poor natives who naturally supposing from their shining appearance that they were worth perhaps some trifle, gladly bartered them away for a day's feed of rice. The Coins however speedily found their way among those who were not long in estimating their real value, and the natives finding that some importance was attached to the glittering metal began to rise in their demands, and at length sold them for one, five, ten and subsequently for fourteen rupees the coin. The purity of the gold especially attracted the notice of the Jewellers and the wealthier natives,

who purchased them for the purpose of having them melted down for trinkets and ornaments—and many, it is to be regretted, have been irretrievably lost in this way. The secrecy at first so carefully maintained by the natives in respect to the spot whence they brought them rose in proportion to the eagerness with which the coins were bought up, and for a long time all endeavours proved fruitless in ascertaining the precise locality wherein they were found. It now appears that they were accidentally discovered in the search for gold dust by the gradual clearing away of the soil on the slope of a small hill in the neighbourhood of Kottayem, a village about ten miles to the eastward of Cannanore. A brass vessel was also found in which many of the coins were deposited. For a length of time the numbers appear to have been very great, and it has been stated that no less than five cooly loads of gold coins were dug out of the same spot. Neither will this startling assertion be so incredible after all, when we have it on record that upwards of five hundred coins were discovered in the Coimbatore district in 1842; a short but interesting account of which is given in the volume of the Madras Journal of Science and Literature, for 1844. Other discoveries have also been made at various intervals in the Deccan, the S. Mahratta country, Cuddapah, Nellore, Madura, and in various places in S. India. But in no instance has such a large quantity of coins almost exclusively gold been hitherto discovered, and all at the same time in such perfect preservation. It is impossible to make any correct calculation as to the numbers which have actually been found, but it might be mentioned that about eighty or ninety have come into the possession of His Highness the Rajah of Travancore—and still a greater quantity has been collected and preserved by General Cullen, Resident in Travancore, while even after the lapse of more than a year from their first discovery they are still procurable from the natives in the neighbourhood of Tellicherry and Calicut. The most numerous examples which occur are those of the reign of Tiberius, and next to that Emperor, those of Nero. It is not a little remarkable that both among these Aurei as well as among the Denarii alluded to as discovered at Coimbatore, 1842, the examples of coins of the Emperor Tiberius should in both instances have been more frequent than any other, although this may in some manner be accounted for when we consider that the reign of Tiberius extended

over a period of 23 years—a long time in comparison with that of the other Emperors excepting Augustus. In other respects the coins are of similar dates with an occasional difference of the types on the reverse of a few of them. No attempt appears hitherto to have been made to investigate if possible in what manner these relics of an age so long passed by, and of a people so interesting as the Romans from their distant conquests and foreign commerce, happened to be conveyed to these countries, where they are again brought to light after having been concealed for so many hundred years.

Before entering upon the subject of the earlier communication which the Romans had with India, a few words upon the history and progress of the later coinage of that people may not be altogether out of place while treating of a matter fraught with so much interest as the present.

Omitting purposely to say any thing about the coinage of the “Kingly period” it might be merely mentioned that the first gold coin that was struck at Rome was in the year 546 A. U. C. or about two hundred and six years before the birth of Christ—the silver coinage having been introduced about sixty years previously. In order to distinguish and separate more clearly the coins of the Republic from those of the Empire, the former have been termed “Consular” and the latter “Imperial” coins. Under the Empire the coinage both of gold and silver money was a privilege exclusively reserved for the Emperors themselves, and during the first Cæsars this was rigidly maintained, while to the senate was entrusted the superintendence of those of copper and other materials. The largest gold coins were called “Aurei,” there being, besides these, coins of silver (Argentei), also brass and copper. The mint (Moneta) was a large building set apart for the purpose on the Capitoline hill, and it is a singular fact that the earliest coins of Rome were cast in a mould and not struck off in the customary manner. These moulds (formæ) were made of stone and some have been preserved to the present day. During the Republic the mint was under the superintendence of certain officers nominated for that purpose, but beyond this, very little is known regarding the internal management of that department. Every citizen, however, had the right of having his own money coined in the public mint and not only was there no reservation for the state for an exclusive coinage but there

were provincial and colonial mints established in various parts of the Roman dominions. This system was however greatly modified under the Emperors and even those who were permitted to coin their own money were obliged to have the head of some Emperor or some member of his family stamped upon the coin and never their own images. Julius Cæsar was the first person whose actual portrait while living was stamped upon the public money and from his time the practice became general.

Thus it will be seen that the Romans had established a regular system for the coinage and necessary circulation of gold, silver and other monies as extensive as the bounds of the empire itself, and destined to carry this distinctive mark of wealth and civilization to the remotest limits of the known world.

We will now consider, in a brief and somewhat imperfect sketch, to what extent and in what manner the Roman trade first arose and was subsequently carried on with the countries of the East, and more especially with that part of India, to which we would more exclusively refer—the Malabar Coast: and also what degree of information the Romans actually possessed of this part of the country, and what kind of commodities were chiefly sought after for their luxury or use.

Previous to their conquest of Egypt the Romans derived the benefits of Eastern commerce indirectly from the merchants of that country, who under the reign of Alexander and the Ptolemies monopolized the entire trade of India and the adjacent countries. Besides this route, the articles of Indian produce and manufacture were imported into Europe by a longer and more tedious way than that of the Red sea. Being brought in vessels up the Persian Gulf and Euphrates, they were conveyed thence across land to Palmyra, then the grand Emporium of Eastern commerce, and which in its central position became an important place from its flourishing and prosperous trade. From Palmyra the goods were carried to the different ports of Syria, and thence distributed to the various countries bordering on the Mediterranean sea. At last the Romans, having subjected Greece and Syria to their sway, and overcome the Republic of Carthage, made a descent upon Egypt, which soon yielded to the force of their arms, and from this time that rich and celebrated country was transformed into a Roman province. This happened during the reign of Augustus, and about thirty years before the birth of Christ.

From this time we may conclude that all direct intercourse of the Romans with the East commenced. They followed up their victories with that characteristic energy for an increased trade, which they ever displayed after the subjection of a foreign people, and the glorious prospect of an undivided command of the Eastern trade added an unusual degree of vigor to their subsequent proceedings. All the luxuries of the known world had hitherto been poured with a ceaseless flow into the opulent markets of Rome, and the opening of a new channel for the speedier importation of the rare commodities of the East, then so little known, was hailed with delight by the luxurious inhabitants of the Imperial city.

Although the occupation of Egypt by the Romans offered them a far greater facility of communicating with India, yet their progress in this respect appears to have been slow and gradual, Augustus probably being more desirous of firmly establishing his authority in that country than of extending his views to the conquest of remoter lands. No expedition to the countries bordering on the Red sea appears to have been meditated till some seventy or eighty years after the Egyptian conquest. During all this time the trade had been carried on by Greek or Egyptian vessels. Without venturing far to sea the commanders of these ships, starting from the port of Berenice (which still retains its ancient name) were in the habit of creeping slowly along the Arabian coast up the Persian Gulf, and never perhaps reaching farther than the mouths of the Indus, till at last, a certain commander more venturesome than his predecessors, boldly pushed across the ocean, and favoured by the Monsoon, safely reached the port of Musiris on the Malabar coast.* This successful voyage was but the prelude to other more fortunate enterprises, and so rapid became the increase of communica-

* It is not exactly known where the present position of Musiris lies, or even of Barace, another port which was not far from it. Robertson adopting the opinion of Major Rennell is inclined to fix them both between the modern towns of Goa and Tellicherry relying on a remark of Pliny that "they were not far distant from Cottonara, a country where pepper is produced in great abundance." In this case Barace might be the present Barcoor, as generally supposed, and Musiris in all probability Mangalore. The author of the *Periplus* remarks that "at all seasons a number of country ships were to be found in the harbour of Musiris," an observation very applicable to that place.

tion, that not long afterwards a fleet of one hundred and twenty sail was annually wafted by the assistance of the Monsoon from the Red sea to the coast of Malabar, from which time a regular trade was established between the ports of Egypt and the Red sea, and those of the Western coast of India.

From the death of Augustus to the elevation of Trajan to the Imperial throne no important additions had been made to the limits of the empire, with the exception of Britain. Trajan soon began to entertain the idea of carrying the Roman arms to the East, and circumnavigating the coast of Arabia, vainly hoped at length to reach the shores of India: but the expedition was so far unsuccessful, and the death of that Emperor soon after taking place, the project was entirely abandoned by his successor Hadrian.

The attempt of Trajan, who died 117, A. D., was never repeated by his successors, nor does there appear to have been any fresh acquisition made to the knowledge hitherto obtained of the western part of India until the reign of Justinian, when owing to the increase of the silk trade, the rival power of the Persians sprang up; the empire was even then in its decline, and the traffic and consequently the dominion over these seas being successfully disputed by a maritime people, the Romans were soon compelled to share and finally to abandon the profits of their commercial dealings with India, which had hitherto been crowned with such advantage and success.

Even the information which the most celebrated writers of the first and second centuries had obtained of India was most inaccurate and imperfect, and Strabo, Ptolemy, Pliny and others equally acknowledge and regret the scanty materials which they possessed regarding the true position and places of the Indian continent. Yet Cape Comorin was even then celebrated for its pearl fisheries, and Ceylon, discovered under the reign of the Emperor Claudius, had already sent an embassy to Rome.* Indeed Arrian himself, who flourished in the second century after Christ, and who might have been expected to have thrown more light upon this subject than either his predecessors or contemporaries appears to dismiss the subject in a hasty and summary manner,

* Pliny gives us the name of the Ambassador (Rachias) who was sent on this occasion. Previous accounts of Ceylon, as found in the ancient writers, were entirely fabulous and devoid of any correct information whatever.

which goes far to prove that his knowledge of the countries beyond the Indus was extremely limited.*

It is most probable that the Romans never exerted themselves to penetrate to any great distance for the commodities they procured from the East, being contented to carry on their trade at those markets on the Malabar coast, which were easiest of access and sufficient for the purposes required. One or more ports such as Musiris or Barace were most likely the chosen spots to which were gathered the necessary products of the Indian countries from whatever side they were brought, and from thence they were shipped to Egypt and thence to the shores of Italy. Merchandise was also conveyed, and perhaps still more frequently than by sea, across the country, enriching several towns and cities on the route which became the Emporia of such commercial goods as were despatched from the Eastern to the Western coast.

Thus the modern town of Arambooly, called Arguropolis by the Greeks, was celebrated in those days for its extent and for the busy trade carried on there. Ptolemy also and Pliny mention Kotar or Nagercoil, under the names of Cottiara and Cottora Metropolis, while the Greek and Egyptian mariners being afraid of doubling Cape Comorin, used to find a safe anchorage for their vessels in the little harbours of Covalum and Colachull to the northern part of that Cape, and which were called in those days the former Colis or Colias and the latter Cojaci.†

The chief articles of export from India during the time of the occupation of Egypt by the Romans were spices of various kinds. Diamonds and other precious stones, ivory, pearls, silk, &c. the latter probably brought from China only. Cinnamon was perhaps more extensively imported from Arabia or the Eastern coast of Africa, in allusion to which a modern writer has remarked that the seaport of Aden,

* The passage in Arrian to which I allude is the following τὸ δὲ πρὸς νότου τε ἀνέμοι καὶ μεσημβρίας, καὶ αὐτὴ ἡ μεγάλη θάλασσα ἀπείργει τὴν Ἰνδῶν γῆν, καὶ τὰ πρὸς ἑω αὐτὴ ἡ θάλασσα ἀπείργει, a vague remark which shows that Arrian was not the author of the "*Periplus Maris Erythræi*" wherein the coast of India and especially the Western part of it, is so minutely described.—*Arriani Hist. Ind. Cap. II.*

† Robertson affirms on the authority of the author of the '*Periplus of the Erythrean sea*,' that the inhabitants of the Coromandel coast traded in vessels of their own with those of the Malabar coast, a fact which may account for the discovery of coins on the Eastern side of the Continent.

was in those days used by the Romans as an entrepôt for the merchandise passing from India to Egypt. "That seaport was apparently the same place which Ptolemy named 'Arabiae Emporium'* and the author of the Periplus tells us that a little before his time it was destroyed by the Romans. But it is to be presumed that the Romans followed up their victory by occupation, for the position assigned in the Periplus to Arabia Felix together with the principle that it is nature which chiefly determines the site of a great maritime Emporium proves that the place in question was no other than Aden, which in the fifth century was the Roman Emporium of the Indian trade." Pepper was entirely supplied from the Malabar coast, and large quantities were shipped every season for the markets at Rome, where it was esteemed one of the greatest luxuries of the day. When Alaric was besieging Rome in the fifth century and condescended to accept a ransom for the city, he expressly stipulated for the deliverance "of 3000 lbs. weight of pepper," so much value was attached to that commodity. All sorts of precious stones were eagerly sought after by the wealthier inhabitants, though it is singular that the Romans set a higher value on pearls than they did on diamonds. The former were procured as at the present day near Ceylon and Cape Comorin, and the mines at Sumbhalapura, in Bengal, are probably the same which yielded their treasures for the Roman merchants some twenty centuries ago. Lastly, ivory, ebony,† and a few commodities of minor importance completed the list of useful or luxurious articles which were transmitted from this country.

* Cooley on the *Regio Cinnamonifera* of the Ancients.

† Virgil says, *India mittit ebur*. But Africa must also have furnished ivory and perhaps in greater abundance, and again

Sola India nigrum

Fert Ebenum,

but it is a mistake of Virgil's to suppose that India alone produces ebony, for Æthiopia is famous for it according to both Pliny and Herodotus. Lucan says, it is an Egyptian plant :

Ebenus Mareotica vastos

Non operit postes, sed stat pro robore vili

Auxilium

Virgil followed Theophrastus who fell into the same error. Ἰδιον δὲ καὶ ἡ Ἐβένη τῆς Ἰνδικῆς χώρας.

From the above brief sketch of the communication which the Romans had with the Western coast of India, and the enumeration of the chief articles of commerce which attracted their merchants hither for the purposes of trade, we have little occasion to be surprised at the discovery of such coins as have from time to time been found in this country; the great difficulty lies in determining by whom and how they were actually brought here and how many centuries may have passed away since they were either lost or deposited in those spots whence they are now taken. The oldest coins in the present collection are those of Augustus and the latest those of Antoninus Pius, embracing a period of about one hundred and forty years. We must therefore conclude that they were all brought here subsequent to or during the reign of the last mentioned Emperor while the very remarkable state of preservation in which they exist would lead us to suppose that they had never been in extensive circulation or use previously. It can be no matter of surprise that no other memorials of those times are found upon this coast, such as buildings, &c, &c., for the ancients obtained no footing in the country, but merely came and returned with their ships laden with merchandize.*

In the absence of all direct testimony as to the probable fact of these coins having been conveyed here by the Romo-Egyptian traders, there is another supposition worthy of taking into consideration, whether they may not have been brought here by those Jewish refugees who emigrating from Palestine about the year 68, A. D. spread themselves over this part of the continent at that early period. That country was then a Roman province and consequently Roman money was there in circulation. At that time ten thousand Jews with their families came and settled on the coast of Malabar and dispersed themselves in various places chiefly on the sea-coast. Now supposing several emigrations of the kind to have succeeded each other and taken place during the third and fourth centuries, (Palestine did not cease to be a Roman province until the beginning of the seventh century,) it is not unlikely that these coins may have been brought by them, and either from suffering persecution or oppression at the hands of the natives they may have buried these treasures for greater security or concealment. But besides the

* Remains of Roman buildings as well as coins have been discovered in Ceylon. In one instance of the latter they were mostly of the age of Antoninus.

Jews the Nestorian Christians may have been instrumental in conveying foreign coins to these countries. In 485, A. D. they obtained a footing in Persia whence they spread into almost every country of the East. But I do not consider this theory entitled to so much consideration from the fact of the coins being found in greater number on or near to the sea-coast, on which account it would assuredly be more plausible to support the idea of their having been brought by the Romans from Egypt, or the Jews from Palestine, presuming the latter people in their emigration came either by the way of the Red sea or the Persian Gulf.*

But in whatever manner these coins originally found their way to this country, their discovery after the lapse of so many centuries cannot fail to awaken the interest of all who appreciate in whatsoever degree the curious relics of antiquity. The contemplation of the Rise and Decay of the Roman empire is of itself a pleasing and instructive occupation. Our feelings are excited with admiration and surprise when we reflect on its unparalleled extent and magnificence; how nation after nation was subdued by its powerful arms—how its vessels sought every known harbour in the world; how its brave and well-disciplined armies humbled the haughtier republics of Greece and Carthage; how Egypt, Syria, and Arabia fell in successive conquests to the superior valour of its soldiery, and how even those distant countries, where the ocean, or the dread of hostile barbarians, opposed the progress of their arms, afforded their products of use or luxury for the gratification of the Roman citizen. The “inhospitable shores” of Britain were sought for the more useful commodities of lead, tin, and even pearls, while every country of the East, including even China, was rifled of the more luxurious treasures of silk, spices, and precious stones.

That glorious empire is now dissolved, but we possess ample and abundant testimony of its wealth, its energy and magnificence in such

* Humphrey in his recent work on ‘Ancient Coins,’ remarks, “that it was possibly of a Denarius of Tiberius, the then reigning Emperor, concerning which, the question ‘Whose image and superscription is this?’” was asked. Whether such was the case or not, there is no doubt but that the coins of that Emperor were in extensive circulation in Judea, both during the lifetime of our Saviour, and at a subsequent period—a consideration which will be duly weighed by those who would support the hypothesis of Roman coins having been brought here by the Jews in their emigrations from Palestine.

memorials as have escaped the wreck of time. To the elucidation of history, and the more remarkable events of those earlier ages, there can be few more valuable memorials than coins or medals. The very image of those great personages who acted such conspicuous parts in the Drama of History are here brought at once to the eye and it ought to form the study and desire of every one to preserve, if possible, such interesting records, which so faithfully illustrate the events and lives of persons long passed away. To us who are in so unexampled a position with respect to India, the discovery of any Roman relic here is a matter of no ordinary interest—more especially when we find in this country coins which commemorate the expedition of a Roman Emperor into Britain some seventeen centuries ago! Britain was styled “the inhospitable”—“the barbarous country” and one “divided from the rest of the World” and was eventually abandoned by the Emperor Honorius, 420, A. D. as a colony not worth retaining possession of.* Records which attest to such facts must possess a delightful interest for every one who reflects for one moment on the position of England at the present day and the fallen Roman empire. “If all our historians were lost” says Gibbon, “medals, inscriptions and other monuments would be sufficient to record the travels of Hadrian,” and the same author elsewhere remarks, alluding to a virtuous action of Antoninus Pius, (one of whose coins is in the present collection) wherein he displays a remarkable instance of his regard for the welfare of Rome: “Without the help of medals and inscriptions we should be ignorant of this fact so honourable to the memory of Pius.”

We should be more fortunate were we in possession of a greater mass of materials than those left us by the labours of the Greek and

* See the curious passage in Plutarch relating to Cæsar's expedition into Britain. “But his expedition into Britain discovered the most daring spirit of enterprize. For he was the first who entered the Western ocean with a fleet, and embarking his troops on the Atlantic, carried war into an island whose very existence was doubted. Some writers had represented it so incredibly large that others contested its being, and considered both the name and the thing as a fiction. Yet Cæsar attempted to conquer it, and to extend the Roman empire beyond the bounds of the habitable world. He sailed thither twice from the opposite coast in Gaul, and fought many battles, by which the Britons suffered more than the Romans gained; for there was nothing worth taking from a people who were so poor, and lived in so much wretchedness,”—*Plut. Life of Cæsar. Lang. Trans.*

Roman Geographers in respect to this country and its former commercial transactions, but I cannot help thinking that the diligent research of the antiquarian scholar would be amply rewarded by a more close investigation of the subject of the connexion of the Romans with the countries of the East. The trade by Egypt and the Red sea was carried on with the nations of Europe until the discovery of the Cape of Good Hope by the Portuguese, for upwards of fifteen hundred years : —Egyptians, Romans, Greeks, Persians and Arabians all successfully enjoyed and participated in the benefits of that route for the purposes of traffic. At length the transport of goods became diverted to another channel by a more tedious but perhaps in many respects a more advantageous passage, and it is not unworthy of reflection to consider the probability of a return to the first and earliest passage by the Red sea—which would appear destined after nearly four centuries have elapsed, to be adopted once more as the line of communication between the distant countries of the East and the European world.

Translation of a native letter descriptive of the locality and first discovery of the Coins.

Tellicherry, December 16th, 1850.

“ Agreeably to my last note, I now beg to furnish you with the information of the discovery of gold coins here. About three years ago certain Syrians residing at Keelaloor Dashom in Palashy Amsham of the Cotiacum talook were in the habit of collecting gold from the bed of the river Vaniencudavoo (by taking the sand and sifting it), which was between Keelaloor Dashom and Vengador. One day whilst they were engaged in digging the bed of the river a number of gold coins was found in a part where there was a mixture of sand and mud. These were lying buried in the ground but not in a vessel. A great quantity was taken but nobody knows how many. Some suppose that these might have been buried here in bags, which have been destroyed. At a distance of ten koles east of this, there is a garden belonging to a Maplay in which are situated a small shop and two houses belonging to some low caste people who always reside there. During the hot season there is water to a man’s depth whilst in the Monsoon there is depth equal to four or five men. The stream runs through one side of the dry bed of the river, whilst the other is so filled up with sand

that it is like an island. Below this island on the other side there is another current resembling a small canal which is the place whence the coins are taken. Certain Maplamars of Curvoye Talook hearing of the discovery of gold at this canal proceeded thither and tried to collect some, and it is said, that they also got some coins. Although what these people got, is not so much as taken formerly by others, nobody knows what was the exact quantity. About the year 964,* it is supposed that certain Gentoo inhabitants of Coorg or Mysore, were in the habit of trading in these parts. This being the time of war some wealthy merchants might have from competent reasons cast their gold coins into the river. There is no story of a wealthy man having ever resided in any of the adjacent villages. Subjoined is a sketch of the locality which I think is not more than twenty-four miles from Tellicherry."

Description of the Coins.

Augustus born 63, B. C. died A. D. 14. Reigned 58 years.

1. *Obverse.* AVGVSTVS. DIVI. F. Head of Emperor.

Reverse. IMP. XIII. Two figures, one seated.

2. *Obv.* Head of Emperor. No Inscription.

Rev. CÆSAR AVGVVS. Triumphal Quadriga.

3. *Obv.* AVGVSTVS. DIVI. F. Head of Emperor.

Rev. AVGVVS. rest illegible. Equestrian figure galloping.

4. *Obv.* CÆSAR. AVGVSTVS. DIVI. F. PATER PATRIÆ.
Head of Emperor.

Rev. AVGVSTI. F. COS. DESIG. PRINC. IVVENT. L. CÆSARIS.

Two figures of Caius and Lucius ; standing between them are two shields on the ground.

The inscription on the reverse of this coin would run thus: *Caius et Lucius Cæsares Augusti filii Consules designati principes juventutis.* Caius and Lucius were the grandsons of Augustus upon whom was bestowed the title of *Principes juventutis*, and it was subsequently conferred upon the probable successor to the throne when he first entered public life. Tacitus explains this when he says "Nam genitos Agrippâ, Caium ac Lucium, in familiam Cæsarum induxerat ; nec dum positâ puerili prætextâ, *Principes juventutis* appellri, destinari Consules," &c. &c. Tac. Ann. 1, 3. See also Suet. in Aug. Cap. 64 et seqq.

* Corresponding to our era 1788, A. D.

The origin of the designation 'Pater Patriæ' given to Augustus by universal consent is thus described by Suetonius, (in Aug. C. 58,) Valerius Messala leaving the Senate house said "bonum faustumque sit tibi, domuique tuæ, Cæsar Auguste, Senatus te consentiens eum populo Romano consalutat Patriæ Patrem."

Tiberius born 42, B. C. died 38, A. D. Reigned 23 years.

5. *Obv.* TI. CÆS. DIVI. AVG. F. AVGVSTVS. PONTIF. MAX. Head of Emperor.

Rev. Figure of Clemeney. A spear in one hand, and olive branch in the other.

6. *Obv.* TI. CÆSAR. DIVI. AVG. F. AVGVSTVS. Head of Emperor.

Rev. DIVOS. AVGVST. DIVI. F.

Head of Emperor surmounted with a star. The star was used as a symbol of the protection of heaven.

Claudius born 10, B. C. died 54, A. D. Reigned 14 years.

7. *Obv.* DIVVS. CLAVDIVS. AVGVSTVS. Head of Emperor.

Rev. EX. S. C. A triumphal quadriga.

8. *Obv.* TI. CLAVD. CÆSAR. AVG. GERM. P. M. TRIB. POT. P. F. Head of Emperor.

Rev. AGRIPPINÆ. AVGVSTÆ. Head of Agrippina, representing a young female. In beautiful preservation.

The inscription on the obverse would run thus. "Tiberius, Claudius Cæsar, Augustus, Germanicus, Pontifex Maximus, Tribunitiæ potestate. Pater Patriæ." There were two celebrated persons bearing the name of Agrippina, one was niece of Tiberius and mother of Caligula. The other was mother of Nero. The image on this coin is that of the former.

9. *Obv.* TI. CLAVD. CÆSAR. AVG. P. M. TR. P. IV. Head of Emperor.

Rev. IM. rest illegible.

A bridge and figure seated.

May not this coin commemorate the building of the celebrated Claudian Aqueduct which bears the Emperor's name to this day and is yet in use at Rome, though partly in ruins?

10. *Obv.* TI. CLAVD. CÆSAR. AVG. P. M. TR. P. XI. IMP. P. P. COS. V. Head of Emperor.

Rev. S. P. Q. R. P. P. ob. C. S. the foregoing is enclosed in a wreath or garland.

This would run. "Tiberius, Claudius, Cæsar, Augustus, Pontifex Maximus, Tribunitiæ potestatis undecimo (anno) Imperator, Pater Patriæ, consulatûs quinto (anno). Senatus, populusque Romanus, Patri Patriæ ob cives servatos." The device of a civic crown is very frequently met with. This was usually bestowed upon those who had saved the life of a Roman citizen. The Senate in bestowing honours upon Augustus decreed that a civic crown should be hung from the top of his house, and this honour having been assumed by the later Emperors a crown of oak leaves with *ob cives servatos* in the centre is often found on the reverse of coins in those Imperial times.

11. *Obv.* TI. CLAVD. CÆSAR. AVG. GERM. P. M. T. R. P. Head of Emperor.

Rev. EX. S. C. ob. Cives Servatos. Enclosed in wreath as above.

Ex Senatus consulto began to be invariably used on coins in the reign of Augustus. A few Republican coins are found with the same initials.

12. *Obv.* TI. CLAVD. CÆSAR. AVG. P. M. TR. PVI. IMP. XI. Head of Emperor.

Rev. S. P. Q. R. P. P. ob. C. S. encircled with wreath.

13. *Obv.* TI. CLAVD. CÆSAR. AVG. P. M. TR. P. X. IMP. P. P. Head of Emperor.

Rev. PACI. AVGVSTÆ. Winged figure of Victory.

14. *Obv.* TI. CLAVD. CÆSAR. AVG. P. M. TR. P. Head of Emperor.

Rev. PRÆTOR RECEPT.

Emblem of Concord representing two figures joining hands.

15. *Obv.* TI. CLAVD. CÆSAR. AVG. P. M. TR. PVI. IMP. XI. Head of Emperor.

Rev. DE. BRITANNI.

Triumphal arch. Emperor mounted—with trophies.

A most interesting coin—representing the arch erected by a decree of the Senate to the Emperor Claudius on the final subjugation of Britain. It was in the year 43, A. D. that the Emperor Claudius sent over a large force to conquer the island, which he subsequently joined himself, Vespasian, afterwards Emperor, being his second in com-

mand. This triumphal arch no longer exists, and were it not for the representation of it on coins we should have remained in ignorance of its ever having been erected.

Caligula born A. D. 12, died A. D. 41. Reigned 3 years 10 months.

16. *Obv.* C. CÆSAR. AVG. GERM. P. M. TR. POT. Head of Emperor.

Rev. AGRIPPINÆ. MAT. C. CÆS. AVG. GER. M. Head of Agrippina. The name of Caligula never appears on his coins and Caius is always expressed by C. The above coin was struck in honour of his mother Agrippina.

17. *Obv.* C. CÆSAR. AVG. PON. M. TR. POT. III. COS. III. Head of Emperor.

Rev. GERMANICVS. CÆS. P. C. CÆS. AVG. GERM. Head of Germanicus.

A coin struck in honour of his father Germanicus.

Drusus born 38, B. C. died 8 B. C.

18. *Obv.* NERO. CLAVDIVS. DRVSVS. GERM. AVGVSTVS. IMP. Head of Drusus.

Rev. DE. GERMANI.

Triumphal arch—surmounted with equestrian figure commemorative of the victories of Drusus in Germany.

19. *Obv.* NERONI. CLAVDIO. DRVSO. GERM. COS. DESIGN. Head of the Young Drusus.

Rev. EQVESTER. ORDO. PRINCIPI. IVVENT.

Drusus was made Consul 9, B. C. The 'Ordo Equestris' established 123, B. C. Those who were admitted into the Equestrian order enjoyed several privileges apart from the rest of the citizens. Such as their distinction of seats in public assemblies, &c. &c.

Nero born A. D. 37, died A. D. 68. Reigned 14 years.

20. *Obv.* NERO. CÆSAR. AVG. IMP. Head of Emperor.

Rev. PONTIF. MAX. TR. POT. IV. P. P. EX. S. C.

Figure holding a spear.

21. *Obv.* NERO. CÆSAR. AVG. IMP. Head of Emperor.

Rev. PONTIF. MAX. TR. P. X. COS. IV. P. P. EX. S. C. Armed Warrior.

22. *Obv.* NERO. CÆSAR. AVG. IMP. Head of Emperor.
Rev. PONTIF. MAX. TR. POT. IV. P. P. EX. S. C. encircled in wreath.

23. *Obv.* NERO. CÆSAR. AVG. IMP. Head of Emperor.
Rev. PONTIF. MAX. TR. P. V. IV. COS. IV. P. P. EX. S. C. Armed Warrior.

24. *Obv.* NERONI. CLAVD. DIVI. F. CÆS. AVG. GERM. IMP. TR. POT. EX. S. C. encircled in wreath.

Rev. AGRIPP. AVG. DIVI. CLAVD. NERONIS. CÆS. MAT. rest illegible. Two heads, male and female.

25. *Obv.* ANTONIA. AVGVSTA. Head of Antonia.
Rev. SACERDOS. DIVI. AVGVSTI. Two torches in upright position.

Antonia, daughter of Marc Antony was born 38, B. C. and was married to Drusus Nero. The inscription on the reverse of this coin may allude to the custom of priestesses (Sacerdotes) or flamens being appointed after the deification of the Emperors to superintend their worship at Rome and elsewhere.

Antoninus Pius born A. D. 86, died A. D. 161. Reigned 23 years.

26. *Obv.* ANTONINVS. PIVS. AVG. GERM. Head of Emperor.

Rev. P. M. TR. P. XVIII. COS. IV. P. P. a temple.

This temple may perhaps bear some allusion to that decreed by the Senate to Antoninus' wife Faustina after her death.

Additional.

27. *Obv.* CÆSAR. AVGVSTVS. DIVI. F. PATER PATRIÆ. Head of Emperor.

Rev. TI. CÆSAR. AVG. F. TR. POT. XV. Triumphal Quadriga.

28. *Obv.* TI. CÆSAR. DIVI. AVG. F. AVGVSTVS. Head of Emperor.

Rev. IMP. VII. TR. POT. XVII. Triumphal Quadriga.

29. *Obv.* TI. CLAVD. CÆSAR. AVG. GERM. PM. Head of Emperor.

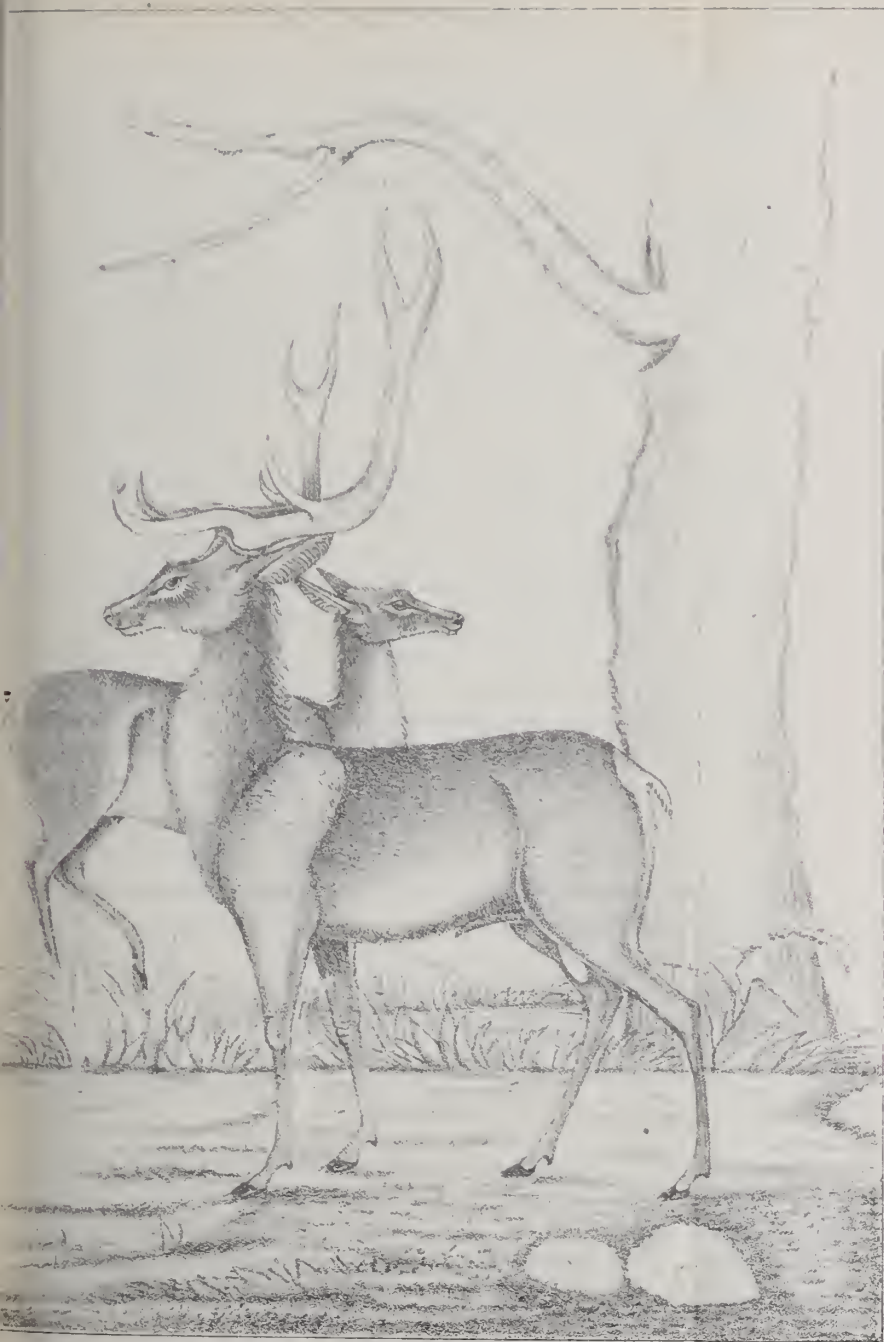
Rev. CONSTANTIÆ. AVGVSTÆ. Female figure seated.

On the Shou or Tibetan Stag, Cervus Affinis, mihi. (With two Plates.)* By B. H. HODGSON, Esq.

Since my imperfect accounts of the Shou were published in the Journal (Nos. 6 and 7 of 1850) abundant supplies of the spoils of the species exhibiting both sexes in various states of maturity have been received by Dr. Campbell through Chebú Lama, the Sikim Vakil; and, as Dr. Campbell has kindly placed these spoils at my disposal for examination, I now proceed to describe this magnificent Stag from unusually copious and adequate materials, the skulls and leg bones being attached to the majority of the specimens. I have now examined nine samples, including my own original one which was described in the Journal, No. 117 of 1841, where the skull and horns, deposited since in the British Museum, are delineated.

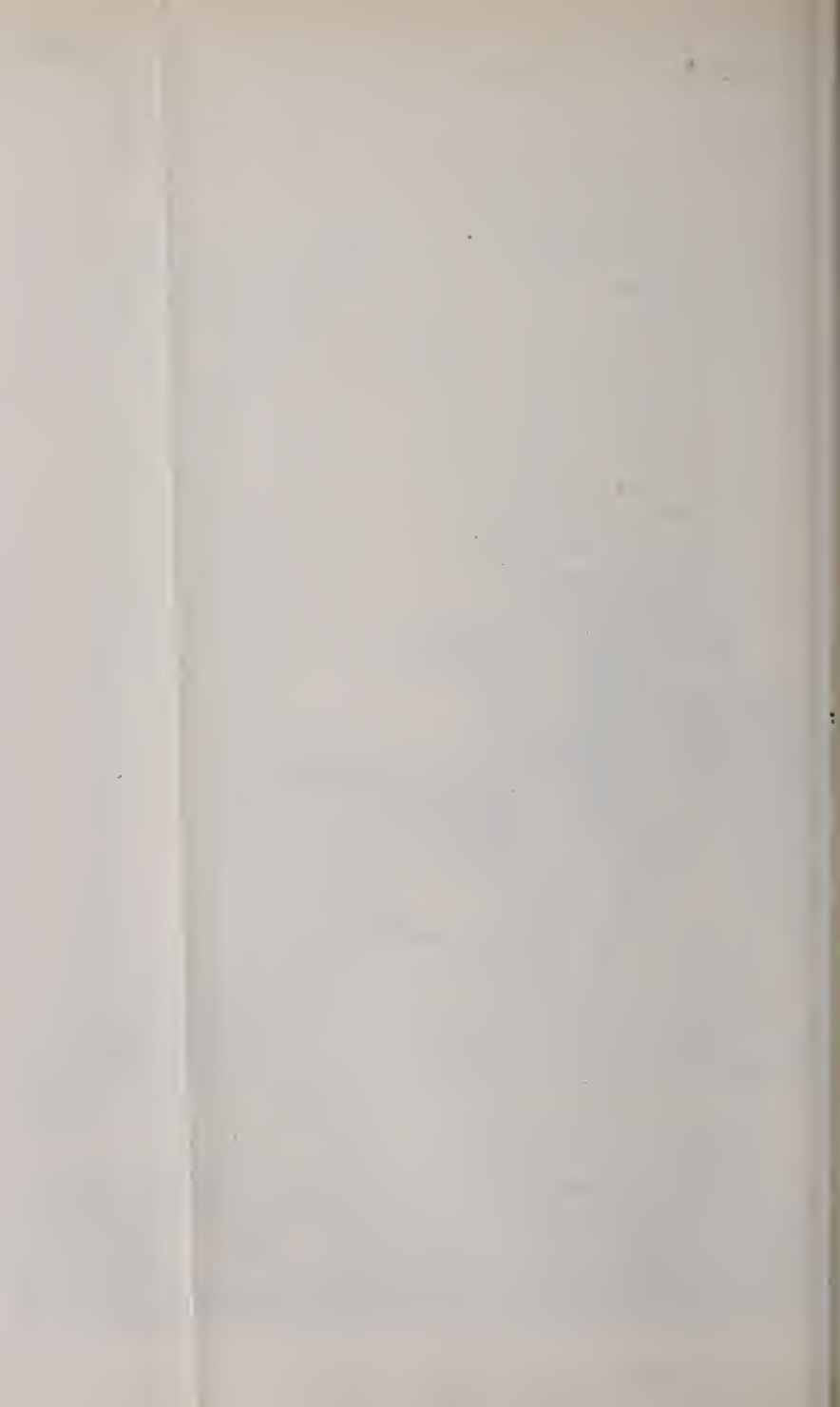
The Shou is from eight and a half to nine feet in length and from four and a half to five feet high at the shoulder. The head is twenty-two inches long, nine deep and seven and three quarters wide. The ears are eleven inches long. The tail, less the hair, is three to four inches. The fore leg, from mid flexure downwards, is eighteen inches; and the hind leg, nineteen inches and more. The fore hoof is four and half inches long, three and three-eighths wide, and three high. The hind hoof, four and one quarter inches long, three in width and the same in height or depth. The horns are five feet long, three to four in spread between the tips, and ten to eleven inches thick at base. The general form of the animal is full of grace and vigour; assimilated to that of the European Stag, but with greater strength of limbs and broader hoofs. The head is finely shaped with broad flat forehead a little depressed before the horns, a slightly arched chaffron and graceful termination forwards, not actually thickened, as I had supposed, though less attenuated than in *Hippelaphus*, *Elaphoides* and *Axis*, or the tropical Deer; and the muzzle or nude extremity of the nose is decidedly smaller than in them, perhaps even more so than in the Stag of Europe. The suborbital sinus is likewise conspicuously smaller, in skin and in skull, than in the tropical Deer just cited, or in the Muntjacs, though not inferior in size to the same organ in our

* Dr. Campbell, Superintendent of Darjeeling has presented to the Society the horns and skin of a very fine specimen in beautiful preservation.—ED.



THE SHOU OF TIBET .

Cervus Affinis niku.



Red Deer, I apprehend. In the feet there are no interdigital pores, before or behind; nor are there apparently any calcic tufts or glands; though in one sample a nudity appears on the os calcis which has somewhat the semblance of this latter organ.

The graceful and majestic horns are inserted on the summit of the frontals but much before the occipital crest, upon a moderate foot-stalk which reclines considerably and is surmounted by a moderate-sized bun. The horns have an ample sweep and curve, both spreading and reclining much, and then approximating more or less, and for the most part greatly so, towards their tips, thus forming large segments of circles.

They are usually a good deal embrowned and more or less rough or pearly on the surface; but frequently are pale in colour and nearly smooth. The beam reclines greatly at first in the manner of the Axines, but about the centre of length it ascends rapidly with a lunate sweep. There are, uniformly in all otherwise diverse specimens, two basal tines, one central, and one apical to each horn. The basal tines or snags are inserted proximately, but not in contact, on the external anteal face of the beam, and are directed forwards with the tips turned upwards; the lower ones leaning over the eyes, the upper, running nearly parallel, outside of them. The upper basal tine or bez of each horn is the larger of the two, nay, it is the largest of the whole, and that invariably.

The central tine is inserted rather more externally and rises somewhat more than the basal ones; but still this snag also may be said to have an antero-external insertion and a forward direction. In size it is always the least of the tines and its position is very near the centre of the horn's length. The upper tine has very little of forward direction or insertion but radiates from the beam sideways, so as to form a simply furcate summit to each horn; its insertion being lateral and external, and its direction ascendant with moderate divergency from the beam. This apical snag is in size always superior to the central snag and often to the lower brow snag, but generally is as large as the latter though never so large as the upper brow snag or bez. Relatively to the end of the beam it is usually very distinctly smaller, but not invariably so. The tail is very short, and the caudal disc remarkably small, but conspicuous from strong contrast of colours. The limbs are

sufficiently fine, though remarkable for strength, and they are terminated by hoofs yet more noticeable for their breadth. The false hoofs are well developed and obtusely conoid in shape. The pointed narrow ears have no striæ within, but are filled with soft hair abundantly—a peculiarity which we may, no doubt, refer, like the contracted nudity of the muzzle and of the larmiers, to the coldness of the animal's habitat.

The pelage is of two sorts, a very fine wool next the skin, and a harsh, quill-like, porrect hair; whereof the latter is inserted in the skin by a slender pedicle or neck and is elsewhere throughout compressed but not wavy. The pelage is abundant and pretty equable in length, the cervine mane being by no means conspicuous and being proper rather to the lower than upper surface of the neck. It is chiefly developed about the gullet and that part of the abdominal surface of the neck which is next the gullet. But there is more or less of mane also on the dorsal surface of the neck; the samples before me being those of the winter dress of the species. The longest cervical and gular hair is from five to six inches; that of the body generally is not above two to two and half inches.

The general colour is earthy brown more or less lutescent, the head and neck being concolorous with the back; but the flanks are conspicuously paled, and the belly as conspicuously darkened. There are no fixed marks on the head, even the dark patch below the gape being sometimes wanting, and the neck, though paler below than above, is not very noticeably so. But the paling of the flanks is as decidedly so as the nigrescence of the belly; the white and black forming a conspicuous contrast on those parts.

More or less of the albescence of the flanks is communicated to the abdominal surface of the neck, and very noticeably to the hinder margin of the buttocks which is whitened confluent with the small caudal disc. The limbs are paler than the back, darker than the flanks, and they have an earthy brown list down the their external and anterior aspect. The internal and prevalent colour of the pelage is purpurescent slaty of a more or less embrowned tinge; the colours above noted being, for the most part, only the superficial ones, though the albescent and nigrescent parts have the pelage *wholly* of a whitish or of black brown hue.

The little tail is white, like its disc, a darker mesial line dividing the latter along the culmenal line of the tail.

The lining of the ears is always white or whitish, and so sometimes are the orbits and lips, but not uniformly. Some of the pale hairs of the body exhibit curious dots of a dark colour at intervals in their length ; not rings but dots merely. The hoofs and muzzle are black, and the horns, pale brown or full brown.

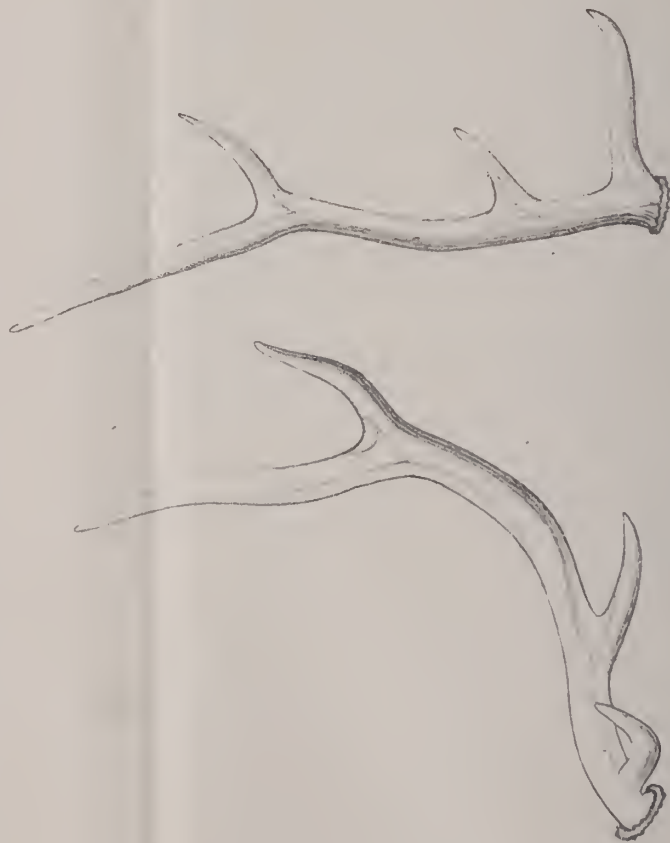
The females are smaller than the males. Their teats are four. They are less maned than the males, and they lack the conspicuous nigrescence of the belly in the males ; their abdomen being whitish like most part of the inferior surface. The brown earthy colour of the upper surface is likewise paler in the females. I have above described the general and normal character of the horns ; but the ample assortment of specimens before me, whilst it stabilises beyond question that character, affords several subordinate variations too valuable to be omitted, which are as follow.

Both the length and thickness of the horns in animals of the same or nearly the same age and size, differ very much ; as much almost as 2 to 1. Next may be noted that the spread of the horns is very diverse, being much greater in some than in others ; or rather perhaps I should say that the sideways curvature varies much, and, as it is more or less, so are the tips of the horns brought near together or kept wide apart. Thirdly, the upper brow or bez antler is apt to have its tip reverted downwards and backwards, instead of being turned normally upwards.

Fourthly, the distance of the two basal antlers from each other is liable to vary considerably, or from two inches to more than four. But, that the greater interval is abnormal is shown, as well by its existing only in one horn of the pair sometimes, as, and at all events, by not characterising the pair generally. These basal snags are never in contact at their bases but very seldom above two inches apart. Comparing the skull of this typical stag (*Elaphus*) with that of the devious tropical stags of Asia (or, to be more precise, *Hippelaphus*) we may remark, that in the former the face is longer and the head shorter ; that is, that the molar, intermaxillar, and nasal bones are as much longer as the frontal and parietal bones are shorter. We may secondly remark that in the former the nasals are somewhat arched

lengthwise, but not so in the latter ; and, thirdly, that there is less compression of these bones in our animal than in *Hippelaphus*, or, to speak more generally, in the tropical Deer. A fourth conspicuous point of difference from *Hippelaphus* and the rest (including *Styllocerus*) is the greatly less development of the cavity for holding the larmier, to all which distinctions we may perhaps add the greater declination of the encephalon from the base of the horns to the occipital crest ; and, lastly, the somewhat ampler width of the occipital plane.

I have no longer any doubt that the Shou is the same species as that described by me under the name of *Affinis* in the Journal, ten years back. I got that splendid sample in the Tarai ; but it had, I now conclude, been carried there from the Himálaya or from Tibet. The Shou inhabits a wide extent of country in Tibet, but is rarely if ever found in Chúmby, and not at all in the Juxtaniyeen districts of Bhútán, as priorly affirmed. Wherefore it cannot be classed as Himálayan as well as Tibetan. Capt. Cunningham assures me that the Stag of Cashmir is the same animal ; but Mr. Gray and Dr. Falconer judge otherwise ; and, as it now appears that the Shou is *not* found in any cis-Himálayan district, nor even in Chúmby with its half Himálayan and half Tibetan climate, I think this identity very questionable, as also that with the Maral or Stag of Persia. But I am strongly inclined to the conjecture that the Stags of Mongolia, of Mantchuria, and of Southern Siberia, are all identical in species with the Shou ; and I am almost satisfied that the Stag of Tibet is specifically the same with the Wapiti of North America, especially that of Canada or the Canadian variety, called often the North-western Stag. Besides the ample spoils of the Shou, I have now before me a Stag's horn from Ladák which may possibly belong to this species, though, being that of a young animal, I cannot say. It is anomalous if appertaining to the Shou by the extreme remoteness from each other of the two basal tines, which in a horn of but 34 inches long is above 4 inches ($4\frac{1}{4}$), whilst the next snag above may be the central, or it may be the apical, one. Its position is about half way between the upper brow snag or bez and the tip of the horn with which it makes a very unequal fork, and it is about the size of the (supposed) bez, but is less than the brow snag. All three tines, moreover, have a less anteal and more laterally external insertion and more upward direction than in



STAG OF WESTERN TIBET OF NARI

Cervus Varians, mm.

the Shou. The Bhotiahs, who brought this horn, say it belonged to a very young animal, and that the species which is proper to Gnári or Western Tibet, is larger than the Shou.

This horn is figured herewith. (Plate ix). It as little agrees with Wallichii as with Shou, though borne by an animal of precisely the alleged age (3rd year) of the only sample extant of Wallichii. One of the six mature samples of the male Shou now before me agrees with this anomalous and immature horn, pretty nearly, in the great separation of the pair of basal antlers, so that we may perhaps have in this young Stag of Lâdak only an unusual specimen of a young Shou; and, should that prove to be the case, we might reasonably become more inclined to admit that no specific distinction between the Gyâna (Wallichii) and the Shou is maintainable. At present I think otherwise, and apprehend that the alleged identity of species between the Shou and Wallichii (as well as the Ladák Stag now spoken of) is more than doubtful, and, at all events is neither demonstrated nor demonstrable from existing materials.*

Capt. Cunningham tells me that the Cashmir Stag has sometimes a double fork at the top of his horns, thus making that animal a twelvener or Bára-singha. The like is sometimes true of the Wapiti and is alleged to be so of the Shou, though the normal form in Wapiti is the same (I conceive) as in Shou, viz. a simply and singly forked summit. Relative to the manners and habitat of the Shou the following is the substance of my information.

The spoils sent in were procured in the beginning of February at Lingmú, which lies beyond the snows and a little south of Phâri, between it and Chúmbi. The species is said to be very generally spread over the wide extent of Tibet, particularly Utsáng and Khám. Of its existence in Gnári or Western Tibet my informants cannot speak so confidently, nor from personal knowledge, though they believe it to be found in that province also. Its existence on this side of the Himá-

* It may surprise those who hear so much inconsistency upon the species called Wallichii by Cuvier to learn that this species was established solely upon a native drawing, and that it neither has been nor can be further confirmed than by reference to a single pair of horns declaredly *not* exhibiting the character of the species, whether from old age or youth, as is diversely affirmed. Nat. Libr. III. 161, and Regne Animal of Griffith IV. 104.

laya, in Bhútán, or even in Chúmby, is still more questionable, though priorly reported, so that it must be considered a Tibetau species only, and not a Himálayan also.

Open plains it avoids, frequenting districts more or less mountainous and provided with cover of trees. It is most common at the bases of the loftier ranges, and in summer, when pasture is scarce below and the snows are melted above, the Shou ascends to the immediate vicinity of the snows, and descends again in winter to the lower levels. It is shy and avoids the neighbourhood of villages or houses, but depredates by night upon the outlying crops of barley and wheat. The species is gregarious, but not very greatly so, though herds of forty to fifty are usual, and more commonly met with than much smaller numbers, such as six or eight or a dozen, except at night when the herds are said to break up into families of the latter amounts, which families collect again into the larger herds in the day time. When the animals migrate, or move from one district to another, their herds are always seen in fullest force. The rutting season is the autumn, and then the herds are broken up, and two or three grown males may be observed following and contending for each female, though she be for the most part appropriated by the strongest of those males which thus attach themselves to her. The breeding season is the spring, and one only is produced at a birth, in places carefully selected as favouring concealment.

The flesh is much esteemed for eating, and the skin and horns also are much prized for economic uses; the immature horns, whilst yet full of blood, being deemed so highly medicinal that they sell for their weight in silver; and the mature horns, ground to powder and taken with mint, being likewise in use by the physicians of Tibet in cases of cholera, vomiting and such like.

July, 1851.

*On the earliest Biography of Mohammad. By Dr. A. SPRENGER,
Secretary to the Asiatic Society of Bengal.*

In comparing the different accounts regarding Mohammad we find that all authors agree on certain points (more particularly on his military expeditions) not only in the sense but even in the expressions. These accounts must therefore be derived from one common source. It appears on further enquiry that this source is a work of Zohry, I have therefore collected passages bearing on this subject.

“Zohry said, The study of the military career of the prophet is conducive to the good of this world and of the world to come. Zohry was the first man who wrote a work on the Biography of the prophet. Some authors say, The first Biography of Mohammad written in the Islām is that of Zohry.” These are the words of the author of the *Insān al’oyūn*. They run in the original *قال الزهري احمد الله تعالى وهو اول من الف في السير قال بعضهم اول في علم المغازي خير الدنيا والاخرة* *وهو اول من الف في السير قال بعضهم اول سيرة الف في الاسلام سيرة الزهري* In Ibn Sa’d the Secretary of Wāqidy, is the following passage regarding Zohry. “Çālih b. Kaysān relates, I met Zohry, and we were both students, and we said to each other, Let us write down the Sunnah (traditions which are precedents in law) of the prophet; and we agreed to do so, and wrote down what came from the prophet. Then Zohry said, Let us also write down what comes from the followers of the prophet, for it is equally Sunnah. I answered, No, it is not Sunnah, let us not write it down. Zohry wrote it down, and I did not write it down.” *اخبرنا صالح بن كيسان قال اجتمعنا انا والزهري ونحن نطلب العلم فقلنا نكتب السنن قال فكذبنا ما جاء عن النبي صلى الله عليه وسلم قال ثم قال نكتب ما جاء عن الصحابة فانه سنة قال قلت اذا ليس بسنة قال فكذب ولم اكتب* Çālih b. Kaysān died shortly after A. H. 140. He is a great authority in the Biography of Mohammad and frequently quoted by Wāqidy and others.

Ibn Qotaybah says of Zohry “His name was Mohammad b. Moslim b. ’obayd Allah b. ’abd Allah b. Shahāb b. ’abd Allah b. al-Ĥārīth b. Zohrah b. Kilāb. His great grandfather ’abd Allah b. Shahāb fought at Badr, on the side of the enemies of the prophet and he was one of those

men who agreed in the battle of Ohad, to kill the prophet if they were to see him, or they would die themselves. The men who thus united themselves were 'abd Allah b. Shaháb, Obay b. Khalaf, Ibn Qamyyah and 'otbah b. Aby Waqqáç. Zohry's father Moslim b. 'obayd Allah followed the standard of Ibn al-Zobayr. Zohry lived at the court of the Khalif 'abd al-Malik b. Marwán and of his son and successor, Hisham. Yazid b. 'abd al-Malik gave him the appointment of Qadhy. He died in Ramadhán, A. H. 124." He was then 72 years old. He may therefore have begun his literary career about sixty years after the death of the prophet, when several of those men who had known him were still alive.

Notwithstanding the testimony of the author of the *Insán al'oyún* I doubt very much whether Zohry has written a history of the prophet in a connected form, excepting perhaps of his military expeditions, مغازی. We find no such book mentioned even by ancient authors, such as Ibn Aby Ya'qúb Nadym or the Sayyid alnás, and comparing traditions quoted by different writers on the authority of Zohry, it appears that it frequently happens that what one author gives as two traditions is mentioned as one by another. I am, therefore, inclined to suppose that Zohry merely took memoranda of the traditions which he heard and encouraged his numerous pupils to do the same. This opinion seems to be confirmed by Nawawy (*Biogr. Dict.* p. 119). "Malik relates, Zohry one day told me a very long tradition, I requested him to repeat as much of it as he thought necessary, that I might impress it on my memory. He refused to repeat it, but when I requested him to write it, he put it to paper for me." In this manner it would appear traditions were at the time of Zohry preserved in writing, but it was left for the following generation to compile them in systematic works.

Besides Zohry two other early works on the Biography of Mohammad deserve mention and may possibly still be extant, viz. Abí Ma'shar and Músà Ibn 'oqbah. Of the latter I have not been able to find any account. It appears, however, from an isnád in Ibn Sa'd who died in A. H. 230, that he flourished early in the second or towards the end of the first century of the Hijrah, for this author did not know Ibn 'oqbah himself but he was instructed in his work by Isma'yil b. 'abd Allah b. Aby Oways of Madynah, who had been instructed in

it by a nephew of Ibn 'oqbah whose name was Ismá'yil b. Ibrahým b. 'oqbah.

The same Ibn Sa'd had been instructed in Abú Ma'shar's work by al-Hosayn b. Mohámmad who had been instructed in it by the author. It would therefore appear that Abú Ma'shar flourished after Ibn 'oqbah. Abú Ma'shar is one of those from whom Tabary has derived his history. Sayyid alnás had both the work of Ibn 'oqbah and of Abú Ma'shar. Ibn Qotaybah contains the following short notice of Abú Ma'shar "His name is Ziyád b. Kolayb. He belonged to the tribe of Malik b. Zayd-Monáh b. Tamym. Some say his name was Zayd b. Kolayb. He died during the administration of Yúsof b. 'omar of the 'iráq." Yúsof b. 'omar was governor of the 'iráq in A. H. 123. (See Abúlfeda I. p. 455.)

For an account of other early works on the History of Mohámmad, I refer the reader to my Life of Mohámmad, p. 62 *et seqq.*

Review of "A Lecture on the Sínkhya Philosophy, embracing the text of the Tattwa Samása," by Dr. J. R. Ballantyne. Mirzapore, 1850. By Dr. E. RÖER.

There does not exist even now, nearly thirty years after the publication of the first of Colebrooke's celebrated essays on Hindu philosophy (1823), a correct estimate of the merits of it among European philosophers; this, however, is not owing to any remissness on their part,—they show, on the contrary, a commendable spirit of patience and fairness in their researches on this subject,—but rather to the insufficiency of the materials upon which they founded their opinion. The means at their command were Colebrooke's essays, the Upanishads, the Bhagavadgítá and Íswara Krishtá's Káriká with some of its commentaries. Colebrooke's essays are, for the scholar who is able to study the philosophical systems of the Hindus in their originals, invaluable; forming, as they do, the best introduction to their study by the wonted precision of his treatment; but for the philosopher they do not suffice, as they were not intended to show the systematical connexion of the principal notions occurring in them, but rather to give a succinct account of their doctrines, without entering into a discussion of the reasons which led to them. Such works, as the Upanishads and the Bhagavadgítá conceal the philosophical thought under a symbolical and

poetical garb, and give therefore as much space to fancy as to strict research. The Bhagavadgītā especially is more an attempt to fuse the ideas of several systems into one, than the precise exposition of any of them. The Sāṅkhya Kārikā, no doubt, is able to open a correct view into the system of the Sāṅkhya, and if it has not done so, we must take into account the difficulties of a first attempt to understand the intricacies of a metaphysical system, unconnected with the development of philosophy in Europe.

There are, however, already now many more materials, which might have led to a more complete insight into the peculiarities of Hindu philosophy, viz. the S'ārirīka Sūtras (the Sūtras of the Védānta) the Sāṅkhya Sūtras, the Nyāya Sūtras, the Bhāshaparich'hēda, and the Védānta Sāra, which works have been published a long time ago. But, with the exception of the Védānta Sāra, they remained inaccessible to European philosophers, as no translations of them had appeared. There exists, to our knowledge, no account, for instance, of the S'ārirīka Sūtras or the Sāṅkhyapravachana Sūtras, independent of what Colebrooke has given in his essays.*

The first and indispensable condition to form a correct idea of Hindu philosophy, is a knowledge of the Sūtras or aphorisms which are considered as the original expositions of the reputed founders of those systems, and which certainly are the first systematical expositions of it which are still extant. They consist in short sentences, generally containing the doctrines of the system together with the reasons for them, although they sometimes refute the tenets of other systems or the prejudices of common belief about certain topics. There is no want of systematical connexion between them; but the intermediate links of thought between one Sūtra and another are often omitted, which gives them frequently an abrupt appearance, and it must therefore be borne in mind, that aphorism, which is the common rendering of Sūtra, means here a short, concise sentence, but not an unconnected one.

* Of philosophical works which have been lately published in Calcutta, we may mention: 1. The Tattwakaumudī, by Srivāhaspati Miśra (this is a commentary to Īwara Kriṣṭa's Kārikā). 2. The Paribhāṣā, by Dharmarājādhwārīndra. 3. The Panchadāsī by Vidyāraṇyaswami, with commentary by Rāmakriṣṭ'a. 4. The S'abdas'aktiprakāś'ikā by Srijagadwis'a Tarkālaṅkara Bhaṭṭāchārya. 5. Kusumāñjali by Srimadudayanāchārya with a commentary by Haridāsa Bhaṭṭāchārya.

The high antiquity, ascribed to the Sūtras by the commentators, who refer them to the inspired sages of the mythological era, may justly be questioned. They are acquainted with the other systems, sometimes quote each other, and refer to previous or later works. Hence we are compelled to conclude, either that the Sūtras are not those of the reputed founders, or that they sprung all up at the same time, and that their founders made several additions to them, embodying in them the references to other systems. This is an absurdity which cannot be admitted by any one who is acquainted with the gradual development of any science.* At any rate, the Sūtras in their present form are not the original expositions of the founders of those systems, but the revisions of a later time, perhaps of different ages, and there is no means to recover the Sūtras in their original form. Nor is it possible to ascertain by the sole evidence of the Sūtras of the several schools, which of them are more ancient than the others, for the reason above adduced, that they presuppose an acquaintance with each other.

The Sūtras of all the systems are posterior to Buddha, as they dispute against the tenets of the different philosophical schools of the Bauddhas, the final revision of which was made in the collection, known by the name of Abhidharma, at the third Buddhist synod, 246 B. C.† It is therefore most probable that none of the collections of Sūtras in their present form existed before 300 B. C.

In this admission, however, it is not included, that the commencement of those systems does not reach to a much higher antiquity; on the contrary, it appears reasonable to suppose, that at least the Védānta, the Sāṅkhya, and probably also the Yoga systems existed anterior to Buddha.

* Or he must, like the Hindu commentators, ascribe to the founders an intuitive knowledge of the future; but this would be also of no avail, since the Sūtras furnish no evidence, that they are composed by their reputed founders.

† Lassen's "*Indische Alterthumskunde*." Vol. II. p. 259.

"All of them (the founders of philosophical systems among the Buddhists) are, in fact, mentioned as cotemporaries of their master, which, however, cannot be true with regard to two of them. It must, therefore, be admitted, that in the collection, bearing the name of Abhidharma, works of different ages were comprehended, although all must have existed previously to the time of the third synod." (246 B. C.)

First, we find in the Upanishads the seeds of these three systems. The Sāṅkhya and Védānta are the theoretical expositions of the doctrine contained in the Upanishads. The Védantā system, especially, in its essential parts, is already met with in those works, which are only distinguished from the compositions of a later time by a less strict arrangement and method. And already at the time of the composition of the Upanishads the science of Brahma or the supreme being, had been taught by a succession of teachers; and although the form in which it was represented, was not that of a regular system, yet all the materials for it were present, and it did not require any great effort or a further development to give a methodical form to those doctrines.

These general considerations are confirmed by historical data. In the Mahābhārata the Védānta is mentioned as a distinct system;* in Manu also a certain doctrine is denoted by this name, and Manu is, in all probability, more ancient than the Buddhist era.† It appears, therefore, right to assume, that the doctrine of Brahma as the absolute substance, the source of all creation, was produced previous to Buddha.

The Sāṅkhya also must have preceded his period. It is evidently the philosophical theory of the author of Manu, as we find therein for instance the name of Avyakta for the creative principle, the name of Mahat (the great one) for its first production (intellect), which terms in this sense are only used by the Sāṅkhya.‡

Further the Sāṅkhya appears to have been the foundation of Buddhism by its assuming knowledge alone as the cause of liberation from pain, by its tenet of the three qualities (goodness, passion and darkness) as constituting the real being of nature, and by a resemblance of opinion in many minor points which this is not the place to state.§

* M. B. xii. 312, III. p. 771. This quotation I owe to Lassen, I. A. Vol. I. p. 834.

† L. I. A. Vol. I. p. 800. "As Ś'iva is mentioned in the most ancient Buddhist Sūtras, but not yet in Manu, where, of the three great gods, Brahmā alone is mentioned, we may assume Manu's Code to have existed in the age before Buddha."

‡ Vid. Manu. S. 1st. Adh. 7 and 15.

§ L. I. A. Vol. I. p. 530. "Buddha's doctrine is an amplification and realization of the Sāṅkhya. Kapila rejected the merit of the pious works prescribed by the

From all this it appears evident, that at least two of the Hindu systems preceded Buddha, and we shall probably be nearly correct, if we assign their commencement to the century before him. Of the Sūtras we found it probable, that they were composed within the last three centuries B. C. although some parts may afterwards have been added to them. The speculative genius of the Hindus would accordingly be enclosed within a period of about 600 or 700 years. After the time of the Sūtras there was not made any great progress in philosophical thinking. The commentaries on them commenced about the fifth century A. D. Hence the development of the systems is clear. Some of the commentaries changed the system itself which they professed to expound. There were different explanations of the same doctrine, by which the doctrine itself became modified, and it is for the history of philosophy to show the differences of conception in one and the same school.*

If we now turn our attention to the Sūtras of the Sāṅkhya, we find a double set of them, either ascribed to Kapila, the one known by the name of Sāṅkhya Pravachana Sūtra, which was published in 1821, at Serampore, together with a commentary of Vijnānāchārya.† Colebrooke

Védas, and taught, that absolute liberation from transmigration was only possible by knowledge. Buddha taught the liberation from the infinite succession of births by the nirvāṇa (extinction of existence.) A sign of it is infinite knowledge. An essential element of the Sāṅkhya, the doctrine of the three qualities, is also anterior to Buddha, as it is not only found in Manu, but is also mentioned in the last chapter of the Nirukta." (Manu S. 12, 24, Nir. 14, 3.)

* There originated for instance a difference in the Védānta, as the modern Védāntists introduced the Māya, or illusive power, by which the whole creation turns out to be only an illusion, which notion took its rise evidently from the attempt to account for the variety of phenomena, independent of the one eternal and identical substance,—further the amalgamation of the Nyāya and the Vaiśeṣika systems, or rather the adoption of the latter by the former with some modifications which belong rather to detail than to difference of view; for the Nyāya Sūtras do not give a metaphysical system of their own; they contain nothing else but logic with an appendix, showing the mode of conducting a scientific dispute,—further in all the schools modifications of some parts of the doctrine, and a more comprehensive and exact deduction of their tenets.

† The full title is: Kapilāchārya prapñitādhyātma vidyā pratipādaka Sūtrasamūhātma Sāṅkhyapravachananāmaka grantha: Tadbhāṣyam Vijnānāchārya virāchitam.

made ample use of them in his essay "On the Sāṅkhya philosophy." Of the other, bearing the title: "Sāṅkhya Tattwa Samāsa Sūtra," Colebrooke was not aware whether it still existed or not, and this is the same work which has been published by Dr. Ballantyne. The former, which is a full exposition of the system, consists of six chapters or lectures, the latter is a very compendious treatise and does not occupy more space than a page. Colebrooke thought, that this collection was probably the original text, because the Sāṅkhya Pravachana contained many repetitions;* but he had not the Tattwa Samāsa before him, or he might have altered his opinion. The Tattwa Samāsa is apparently not the original; for it is not given in the usual form of Sūtras,—viz. of concise sentences, which, however, give always the reason for what they assume,—but the whole is comprised in one sentence, containing only the names of the principal notions or divisions of the system, and appears to have been composed merely for the sake of calling to memory the topics treated in the more extensive Sūtras.

The Sāṅkhya Pravachana is ascribed to Kapila, the founder of the Sāṅkhya; but this is impossible, the Sāṅkhya being more ancient than Buddhism, and the Sūtras belonging to a much more recent time. This is evident from the Sūtras themselves; for they quote the opinion of Panchas'ikha (Sāṅkhya P. S. p. 216, Cap. 6. S. 68) who is the disciple of Kapila's disciple Ātri, and refer also to other teachers (l. c. p. 205). The Sūtras further refer to the tenets of four of the Buddhist

* Col. M. E. Vol. I. p. 231. "It appears from the preface of the Kapila-bhāṣya, that a more compendious tract, in the same form of Sūtras or aphorisms, bears the title of Tattwa-samāsa, and is ascribed to the same author, Kapila. The scholiast intimates that both are of equal authority, and in no respect discordant: one being a summary of the greater work, or else this an amplification of the conciser one. The latter was probably the case; for there is much repetition in the Sāṅkhya Pravachana." And he gives afterwards (p. 232) as another reason the authority of the commentator: "If the authority of the scholiast may be trusted, the Tattwa-samāsa is the proper text of the Sāṅkhya, and its doctrine is more fully, but separately set forth, by the two ampler treatises, entitled Sāṅkhya Pravachana, which contain a fuller exposition of what had been succinctly delivered;" but this is a misapprehension; the scholiast does only say: "they are of equal authority, one being a summary of the greater work, or else this an amplification of the conciser one." Vid. Sāṅkhya Pr. Bhā. p. 5.

seets (for instance, 1st Adh. Sū. 20 to 40), which, according to the above mentioned reasons, would bring their composition down to the third century B. C. Moreover, Pāṭaliputra is referred to therein. This was, according to Lassen, built by the king Ajātas'atru a short time before the death of Buddha, and it became the royal residence of Asoka, who is named Kālāsoka, 100 years after Buddha's Nirvāṇa (about 440 B. C.) It was in ruins, when Hsuan Tshang visited India (A. D. 632).* The Sāṅkhya Pravachana, although not named, is also referred to by Īswara Kriṣṭ'a, in his Kārikā† which was commented on by Gauḍapada, the teacher of Govinda, whose disciple S'ankarāchārya lived probably at the close of the eighth century, so that Īswara Kriṣṭa must have lived latest at the beginning of the eighth or at the close of the seventh century, and the latest date of the Sāṅkhya Pravachana is therefore the seventh century. Hence it is evident, that the composition of this work falls within the space between 250 B. C. and 600 A. C.

The period, in which we have included those Sūtras, is certainly very long; but limited as this determination is, it prevents a number of serious errors in our view of the development of Hindu philosophy. All further information we must expect from the publication of other works, especially of Patanjali's commentary to the grammar of Pāṇini.

With regard to the second set of Sūtras, the Sāṅkhya Tattwa Samāsa, we are left quite in the dark, as there are no materials to decide its

* Lassen I. A. Vol. II. p. 81. "Ajātas'atru appears to have long time had the intention of conquering Vaisālī; for it is recorded, that his two ministers Sunītha and Vāsyakāra founded in the village Pāṭali, a fortress against the Vrigi; this took place a short time before the death of Buddha. It is, no doubt, the place, where the town Pāṭali-puttra, afterwards so famous, arose; its situation is distinctly defined by the circumstance, that Buddha on his tour from Nālanda to Vaishālī came to that place." l. c. p. 84. "Kālāsoka transferred his residence to Pāṭali-puttra."

† Col. M. E. Vol. I. p. 233. "The author (Īswara Kriṣṭa) must have had before him the same collection of Sūtras, or one similarly arranged. His scholiast (Nārāyaṇa Tīrtha) expressly refers to the number of the chapters." Wils. Sāṅkhya K. p. 192. "The Kārikā must consequently (because in the 72^d Kārikā the author says, that he treats of the whole science, exclusive of the illustrative tales, and omitting controversial questions) refer to the collection of Kapila's aphorisms, called Sāṅkhya Pravachana" (the 4th and 5th chapter of which contain such tales and questions.)

date. It is not referred to in the Kārikā or in Gaudapada's commentary. It is noticed, indeed, in Vijnanācharyā's Bhāṣhya in the manner above stated; but this work is much later than Gaudapada. Who is the author of its (the Sāṅkhya Tattwa Samāsa) commentary, bearing the title "Tattwasamāśasūtravṛitti, we do not learn from the commentary itself, as the author has not named himself at the end of it, as is usually the case. There is, however, an interesting notice on the Tattwasamāśasūtras and its Vṛitti in a commentary of the Kārikā, entitled "Sāṅkhyatattwavilāsa," by Raghunātha Tarkavāgīśa Bhaṭṭāchārya,* where at its commencement the traditional belief is given as to the origin of this collection of Sūtras, and of the author of the commentary of them, together with the Sūtras themselves, and a short explanation of them. We think this tradition very curious, and do therefore not hesitate to transcribe the whole passage relating to the traditional account of the school.†

* This work was not known to Colebrooke; at least it is not mentioned by him in his essay. A MS. of it is in the Library of the Asiatic Society.

† पुरा किल कपिलशिष्य आसुरिनामा कश्चिदुब्राह्मणः आध्यात्मिकाधिभौतिकाधिदैविकात्मिकत्रिविधदुःखैरनुभूतः साङ्ख्याचार्यं कपिलमहर्षिं शरणमुपेत्यात्मनो नामगोत्रायभिधायाह । भगवन् कपिलमहर्षे किमिह यायातय्यं किं कृत्वा कृतकृत्यः स्यामिति ॥ ततः कपिल उवाच । कथयामि । १ अष्टौप्रकृतयः । २ षोडशविकाराः । ३ पुरुषः । ४ त्रैगुण्यं । ५ सच्चरः । ६ प्रतिसच्चरः । ७ अध्यात्मं । ८ अधिभूतं । ९ अधिदैवतञ्च । १० पञ्च बुद्ध्यः । ११ पञ्च कर्म्मयोगनयः । १२ पञ्च वायवः । १३ पञ्च कर्म्मात्मानः । १४ पञ्च पर्व्याविद्या । १५ अष्टाविंशतिधाऽष्टशक्तिः । १६ नवधा तुष्टिः । १७ अष्टधा सिद्धिः । १८ दशधा मूलिकार्याः । १९ अनुग्रहसर्गः । २० चतुर्दशविधा भूतसर्गः । २१ त्रिविधो धातुसर्गः । २२ त्रिविधो बन्धः । २३ त्रिविधो मोक्षः । २४ त्रिविधं प्रमाणं । २५ त्रिविधं दुःखं । एतत्परं यायातय्यं । एतत्सम्यक् ज्ञात्वा कृतकृत्यः स्यात् । न पुनस्त्रिविधेन दुःखेनाभिभूयते इति । एतान्येव साङ्ख्यसूत्राणि कुर्वन् कपिलः स्वशिष्यमासुरिनामानं मुनिमबोधयत् । आसुरिस्तु पञ्चविंशतितत्त्वेषु जन्मना ज्ञानमाप्तवान् । आदिष्टौ नमस्तस्मै कपिलाय महर्षये । इति पद्येन गुरुं नमस्कृत्य । अथातस्तत्त्वसाङ्ख्यासूत्राणि व्याख्यास्याम इति प्रतिज्ञाय कश्चिदुब्राह्मण इत्यनेन खनामाकथनात् खस्य विनयमाविष्कुर्वन् यथावृत्तं वृत्तान्तमभिधाय कपिल उवाचेति निर्देश्य कपिलोक्तसूत्राणाविष्कृत्य तत्र प्रथमं प्रकृतय उच्यन्ते इत्यधिकृत्य साङ्ख्यसूत्रवृत्तिं निर्माय स्वशिष्यं पञ्चशिखनामानमध्यापयाम्बभूव । एतदुक्तं संप्रतितमकारिकायां । एतत्पवित्रमयं मुनिरासुरयेनुकम्पया प्रददौ । आसुरिरपि पञ्चशिखाय तेन च बद्धधा कृतं शास्त्रं । अथ तदुच्यते-

From this there appears no doubt, that the commentary is one of the oldest works of the school, as it is ascribed there to Āsuri, the disciple of Kapila. This statement, however, is disapproved by the commentary itself, where, among the earliest teachers of the Sāṅkhya, Āsuri and his disciple Panchas'ikha are enumerated. At any

कदम्बं श्रीईश्वरकृष्णःस्वनामकस्तत्राणोत्तर्यः । अत एव सङ्ख्यापञ्चविंशति दासप्तत्या
कारिकाभिः प्रबबन्धेति पूर्ववृत्तान्तः ॥

In olden times a certain Brāhmaṇa, the disciple of Kapila, Āsuri by name, overwhelmed by the three kinds of pain, (viz. the pain arising from one's own nature, mental or bodily, from external animated agents, and from external inanimate agencies) took refuge with the great Rishi Kapila, the teacher of the Sāṅkhya, and having told him his name and race, he said : O venerable, great Rishi, Kapila, what is truth in this world, and what must I do to obtain the object of life ? To this Kapila replied : I will tell you. 1. Eight producers, 2. Sixteen productions, 3. The soul, 4. The three qualities, 5. Evolution, 6. Revolution, 7. The ministers of the soul, 8. The province of organs, 9. The superintending deities, 10. The five modifications of intellect, 11. The five sources of action, 12. The five vital airs, 13. The five, whose nature is action, 14. The five-fold ignorance, 15. Disability of twenty-eight kinds, 16. Acquiescence of nine kinds, 17. Perfection of eight kinds, 18. The radical facts of ten kinds, 19. Benevolent creation, 20. Created existences of fourteen kinds, 21. Parental creation of three kinds, 22. Bondage of three kinds, 23. Liberation of three kinds, 24. Proof of three kinds, 25. Pain of three kinds,—this is the truth supreme. Having thoroughly understood this, a person will obtain the object of life, and not be subject again to the three kinds of pain. Kapila, having composed those Sūtras of the Sāṅkhya, thus instructed his disciple, Āsuri by name. Āsuri then saluted his teacher with the following verse : "Salutation to the great Rishi Kapila, who obtained at the first creation the knowledge of the 25 principles by his birth," and having promised : "Now we shall explain" the aphorisms of the Sāṅkhya with regard to the principles, commenced in this manner : "A certain Brāhmaṇa." By not telling in this manner his name, he was desirous of showing his humility, and having given the account according to truth, and told, that : "Kapila replied," he set forth the aphorisms, declared by Kapila, in the first of which the "Producers" are named. Having in this manner engaged himself, he composed a commentary to the aphorisms of the Sāṅkhya, and instructed his disciple Panchas'ikha by name. It is said in the Kārikā in the 70th Sloka : "This great purifying (doctrine) the sage compassionately imparted to Āsuri, Āsuri taught it to Panchas'ikha, by whom it was extensively propagated." The Sūtras, under the name of Īswara Kṛiṣṭa give the sense of this commentary. Therefore he explained the 25 principles of the Sāṅkhya by 72 Kārikas. Thus goes the ancient account.

rate, it cannot have been composed earlier than at the end of the second century B. C., as Patanjali, who, according to Lassen, lived in the time from 200 to 150 B. C., is at the same place mentioned as a teacher of the Sāṅkhya, with others after him, whose names are not stated.*

From the preceding remarks the importance of the Sūtras is evident. An acquaintance with them saves a number of useless speculations, and gives the only hold we can make use of in an historical research by referring any later exposition of a system to the original view of the school. In fact, by their means only we shall be able to form an exact notion of the characteristics of each school.† It was therefore a well-conceived idea of Dr. Ballantyne to publish the Sūtras of the reputed founders of the systems of Hindu philosophy, in order to render possible a more correct and extensive knowledge of them than there had existed before. To extend the use of those works to the learned in general, he accompanied the original with an English translation, and as the Sūtras, independent of an explanation, would be useless to any one, not perfectly acquainted with the systems, he added to the Sūtras extracts from their commentaries together with a translation of them, with the exception of the Sāṅkhya Tattwa-Samāsa Sūtras, of which he gave the whole commentary, doubtless, because it is so short and easy, that there was no necessity for an extract. To give extracts only from the other commentaries, was judicious. An edition of the whole of them would have for a long time retarded the

* Vid. "Lecture on the Sāṅkhya Philos." p. 23. The Bhagavad Gītā is also quoted in the commentary (L. on the S. P. p. 23) and if Lassen's conjecture is correct (Vid. his second edition of the Bhagavad G. p. xxxvi.), that the Bhagavad Gītā was composed about 5 centuries before Śaṅkara, the commentary could not be older than the third century A. D. This is probable indeed, but yet doubtful.

† For instance, if one reads first the Védānta Sāra, as an introduction to the Védānta, he will of course think, that the doctrine of the Māyā is an original tenet of the school; or in studying first the Bhāṣya Parichhēda,—one is inclined to believe, that the doctrine of the categories, of the atoms, of the soul, &c. &c. belongs to the Nyāya, while all these notions are produced by the Vaiśeṣika, or also, that the theory of the syllogism in the form, as it is deduced in that work, is the theory of the founder of the Nyāya, while it appears from his Sūtras, that his deduction differs in important points.

plan to give an although preliminary, yet precise view of those systems, which was more than any thing else required for the present ; for almost all those commentaries are voluminous and abstruse works, and in those parts, which expound a view of the system in all the intricacies of argumentation, or in its relation to other systems, difficult to be understood, while, on the other hand, those parts which explain the mere sense of the Sūtras, are generally clear and easy.

Dr. Ballantyne has executed his task with great care, tact and with the philosophical attainments necessary for the success of such an undertaking. Mere philological competency was here not sufficient, where it must have been the principal point to understand the exact bearing of philosophical principles, methods and discussions. But even the mere philological difficulties are not few or insignificant ; first, the MSS. are generally very indifferent, because they have been, in most cases, transcribed by persons little or not at all acquainted with the subject ; secondly, the language of the commentaries themselves is often obscure ; thirdly, there is a number of technical terms, belonging to each system, whose exact meaning cannot be learnt from the dictionaries, or an acquaintance with other parts of Sanscrit literature, but only from a close study of the system itself, and special care must be taken not to confound the meaning which a technical term has in one system, with the meaning of the same in another. There is another difficulty, which ought to be at least touched upon, viz. the weight of illustrious names, whose authority has not only become great, which is quite right, but almost absolute, than which there is nothing more pernicious in science.

The translation of the work before us is excellent. It is, like all the translations of the author from the Sanscrit, more literal than we have ever found any English translation. The sentences, it is true, are sometimes very much twisted to keep as closely as possible to the expressions of the original ; but they remain *always* intelligible, and convey the sense of the original with an exactness as could not have been otherwise obtained. And this is in philosophical works, such as the present is, which reject all beauty of language, a great advantage ; for here the precision, with which the notions are defined, is of the highest importance.

The general remarks on the Sāṅkhya (p. 52 to 65) in which Dr.

Ballantyne endeavours to show the coincidence of thought of the Sāṅkhya in several respects, with some of the newest systems of philosophy, are judicious, and define clearly the points which must be thoroughly known, before an understanding of the system is possible; but in his comparison he goes sometimes too far. There is no doubt, to all philosophers of any time or clime the same materials are given for their speculation, viz. the phenomena of external and internal nature, and it must be expected, that in many points their ideas must concur; but there is yet a vast difference between the rough attempts of the commencement of speculation and the ideas of such thinkers as Fichte, Schelling and Herbart. Fichte for instance would probably be not well satisfied, if his "ego" (the identity of the object which is thought on, and of the subject, by which it is thought on) would be compared with the "ego" or Ahamkāra of the Sāṅkhya which is a production of nature (that is to say, which is merely objective) finite and altogether opposite to idealistic notions. Also Herbart's "essence that assumes different properties which come before us in sensation," is in every way opposite to the "indiscrete" of the Sāṅkhya; but this view may be owing to the conception of Mr. Morell (in his "History of Philosophy") which is far from exact.

It is to be hoped, that Dr. Ballantyne's labours will contribute to revive the zeal for a more thorough study of Hindu philosophy, especially in India, where the literature of the Hindus is not, as in Europe, estimated and studied according to its deserts. Dr. Ballantyne has done a real service to the friends of philosophy by his publication of the Sūtras; a beginning has thereby been made of a more thorough acquaintance with one of the principal elements of ancient Hindu life; at the same time there remains a wide field for exertion viz. the publishing and translating of the principal works of each school of philosophy, and we cannot forbear thinking, that the present generation cannot escape censure, if they neglect to use the means at their disposal to further such an undertaking for which by their situation they seem especially called upon.

Continued from Vol. XI. p. 34, of the Journal, 1841.

Vol. Page.	Geological.	Mineralogical.	Paleontological.	Analyses.
XI. 1	Supposed coal of Kalabagh, <i>Dr. Jameson.</i>			
24	Tin of Mergui Addl. Report, <i>Capt. Treemenheere.</i>		
217	Notes on Do., <i>Dr. McClelland.</i> On the Manufacture of Steel in Southern India, <i>Capt. Campbell.</i>		
289	Concluding Notes on Tin of Mergui, <i>Capt. Treemenheere.</i>		
326	Correspondence on Do., <i>Gö- vernement.</i>		
322	Circular of Museum of Economic Geology, <i>H. Piddington.</i>		
1131	Descriptive Catalogue of Specimens from Aden Mt. Sinai and Egypt, &c., <i>Capt. Newbold.</i>		

JOURNAL OF THE ASIATIC SOCIETY.

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analysis.
XI. 1157	Visit to Melum and the Oonta Dhoora Pass, <i>Capt. Manson and T. H. Batten, Esq. C. S.</i>			
Extra No.	.....	Report of the Mineralogical Survey of the Himalaya Mountains, <i>Capt. J. D. Herbert.</i>		
XII. 78	Journal of a Trip to the Bulcha and Oonta Dhoora Passes, <i>Lieut. J. A. Weller.</i>			
164	.....	Ores from the Kutturbagga Iron Mine, Sumbulpore District, <i>C. L. Babington.</i>		
183	Report of deputation to examine the Inundation of the Indus, <i>Dr. Jameson.</i>			
236	.....	.....	.....	Of Iron Ores from Tavoy and Mergui and Limestone from <i>Dr. A. Ure.</i>
253	.....	Asphaltum Rock and Asphalte, <i>Capt. Goodwyn, B. E.</i>		

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses.
XI. 363	Journey from Soobathoo to Shipke, <i>Lieut. Gerard, B. A.</i>			
	Geology of Bundelkund and Jubbulpore, <i>Dr. J. Adam.</i>			
471	.....	.....	.....	Limestone from Darjeeling, <i>H. Piddington.</i>
723	Coal Field of the Dummoodah Valley, <i>J. Homfray.</i>			
811	.....	Contributions to a History of the development of Mineral Resources of India, No. I., <i>S. G. T. Heatly, Esq.</i>		
836	.....	Building Materials of District of Cuttack, <i>Lieut. Rigby, B. E.</i>		
839	.....	Second Report on Tin of Mergui, <i>Capt. Trenenheere.</i>		
853	.....	Iron of the Kasia Hills, <i>Lieut. Yule.</i>		

JOURNAL OF THE ASIATIC SOCIETY.

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses.
XI. 929	Geological Notes, Bellary to Bijapore, <i>Capt. Newbold, M. N. I.</i>			
941	Ditto ditto Bijapore via Kanhigiri, <i>Capt. Newbold.</i>			
XII. 254	Cotton soil from Kurnaul, <i>Capt. Newbold.</i>			
256	Mud Volcano of Khyook Phyoo, <i>Capt. Howe.</i>			
333	.....	Copper Ores on Round Island Cheduba Archipelago, <i>Major Williams.</i>		
453	.....	Report on Copper Mines of Pokree in Ghurwal, <i>G. S. Lushington, Esq. C. S.</i>		
521	Note on Jowahir and Neetee Passes, <i>Capt. Boys.</i>			
523	Visit to the Pakchan River, Siam Boundary, <i>Capt. Tremmenheere.</i>			

JOURNAL OF THE ASIATIC SOCIETY.

Vol. Page.	Geological.	Mineralogical.	Palaontological.	Analyses.
XII. 542	.....	Contributions to a History of the Mineral Resources of India, No. II., <i>Healty</i> .		
736	.....	Galena from Chota Nagpore, <i>Piddington</i> .		
769	.....	Supplement to Report on Copper mines of Pokree, <i>Lushington</i> .		
769	.....	.....	On a Fossil Antelope, Dadoo- pore Museum, <i>Baker</i> .	
832	Sub-Marine Volcano, Arracan, <i>Major Williams</i> .			
833	.....	Sulphur from Kurrachee, <i>Capt. Preedy</i> .		
834	.....	.....	.....	Sulphur from Kurrachee, <i>Piddington</i> .
904	.....	.....	.....	Native Copper from Round Island, <i>Mornay</i> .
907	Earthquakes in Upper Assam, <i>Hannay</i> .			

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses.
XII. 914	Proposed examination of Round Island, Arracan, <i>Piddington</i> .			
1014	Ditto ditto and letter to Government, <i>H. Torrens, Esq. C.S.</i>			
1025	.....	Catalogue of specimens from the Bombay Presidency.	.....	Effects of Sea-water on Iron, <i>W. B. O'Shaughnessy, M.D.</i>
1029	Memoir on Indian Earthquakes, <i>Lt. Baird Smith</i>.	.....	.....
1114	Instructions for Steamer Visiting the Chadooba Groupe, <i>Piddington</i> , and Report, <i>Capt. Russell</i> .			
1120	.....	Indian Lithographic Stones.		
XIII. Proc.vi. ....	.....	Heerapore Iron Ores, <i>Capt. Oldfield</i> .		
171	Geological Map of Capt. Herbert's Survey.			
172	Notes on Moorcroft's Travels in Ladakh and Gerard's Kunmaon, <i>Lt. J. D. Cunningham</i> .			Corundum Stones, <i>Piddington</i> .

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses.
XIII. Proc.vi. 313	Fossil Deposit, Kunkar, and Thermometrical Temperature of Southern India, <i>Capt Newbold.</i>			
xxxvi.	Volcanic Island, Arracan, <i>Major Bogle.</i>			
xxxvii.	Catalogue Geological Specimens from Western India, <i>Bombay Society.</i>			
336	.....	.....	.....	Red Sandstone from Urnoor. Southern India, <i>Piddington.</i>
IX.	.....	Lithographic Stone, <i>Capt. Stewart.</i>		
734	Capt. Herbert's tour from Al- morah through Kumaon and Ghurwal, <i>J. H. Batten, C. S.</i>		Osseous Breccia and Deposit of Billa Soorgum, Southern In- dia, <i>Capt. Newbold.</i>	
XIII. 765	.....	.....	Notes on Nerbuddah Fossils, <i>Spilsbury.</i>	

JOURNAL OF THE ASIATIC SOCIETY.

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses.
cxvii.	.....	.....	.....	.....
853	Extracts from <i>Dr. Voysey's Journals</i> , No. 1, Geological Remarks from Benares to Barrackpore, <i>Dr. T. Row.</i>	.....	Loheidolite, <i>Piddington.</i>	Loheidolite, <i>Piddington.</i>
880	.....	.....	.....	.....
964	On Indian Earthquakes, <i>Baird Smith.</i>	.....	.....	Aerolites from Kandeish, <i>Ab-bott—Piddington.</i>
984	Notes from Masulipatam to Goa, and on Regur and Laterite, <i>Newbold.</i>	.....	.....	.....
cxiv.	.....	.....	.....	.....
	.....	Rajarrah Coal specimens, <i>Sherwill.</i>	.....	.....
XV.	.....	Corundum, <i>Sherwill.</i>	.....	.....
XIV.	.....	Agalmatolite, (Samy Stone), <i>Major Williams.</i>	.....	.....
XXIII.	Hot springs of Chittagong, <i>Ince.</i>	.....	.....	.....
XXIV.	Submarine Volcano, Arracan, <i>Williams.</i>	.....	.....	.....

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses.
217	Glacier Ice-berg and Wave Theories in Southern India. <i>Newbold.</i>			
XIV. 268	Notes on the Southern Maharratta Country, <i>Newbold.</i>			
329	.....	Tin Ore of Mergui, <i>Tremenhæere.</i>		
354	Notes on the Nerbudda with map, <i>Ouseley.</i>			
398	Notes from Kistnapatam to Honawur and falls of Gair-suppa.			
442	On Kunkur formations, <i>Ab-boll.</i>			
XIV. ....	.....	Graphite from Travancore, <i>Cullen.</i>		
471	.....	Pokree and Dhanpore Copper Mines, <i>S. Reckendorf.</i>		
495	Sandstone at Sasseram in Shahabad, <i>Sherwill.</i>			

JOURNAL OF THE ASIATIC SOCIETY.

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses.
	Notes from Madras to Goa, No. <i>Newbold</i> .			
XXXV.	.....	.....	.....	Lignite from Assam, <i>Pid- dington</i> .
XIV. 604	Register of Indian and Asiatic Earthquakes, <i>Baird Smith</i> .			
641	Notes from Mangalore to Ma- dras, <i>Newbold</i> .			
754	.....	.....	.....
756	Agate Splinters on the Banks of the Nerbudda, <i>Abbott</i> .	Iron Works of Beerbhoom, <i>Welby Jackson, Esq. C. S.</i>		
	Notes on Southern India, Pon- dicherry to Eyopore, by the Palgatcherry pass, <i>Newbold</i> .			
CXVI.	Limestone Deposit at Trevan- drum, <i>Genl. Cullen</i> .			
817	Assam Petroleum Beds, <i>Han- nay</i> .			
821	Granite in the bed of the Ner- budda, <i>Abbott</i> .			

Vol. Page.	Geological.	Mineralogical.	Paleontological.	Analyses and Examinations.
XV. 55	Geological features of Zillah Behar. <i>Sherwill</i> .			
204	Notes from Pennaur to Pondicherry. <i>Newbold</i> .			
224	— on the Western Coast of Southern India. <i>Newbold</i> .			
315	— from Seringapatam by the Hegulla pass, to Cannanore. <i>Newbold</i> .			
380	— from Koompta to Cumbum and Chittoor. <i>Newbold</i> .			
LII.	.....	.....	.....	Ore of Cerium from Southern India. <i>Piddington</i> .
LIV.	.....	.....	.....	Lead and Antimony from Hisato. <i>Piddington</i> .
XVI. 193	.....	.....	.....	Atmospheric Dust, from Shanghae. <i>Piddington</i> .
226	Excursion to the Pindree Glacier. <i>Madden</i> .			
279	Notes on Zillah Shahabad. <i>Sherwill</i> .			
266	.....	Gold Washings from the sands of the Beyass. <i>Abbott</i> .		
369	.....	.....	.....	Tremenheevite. <i>Piddington</i> .

JOURNAL OF THE ASIATIC SOCIETY.

Vol. Page.	Geological.	Mineralogical.	Palaeontological.	Analyses and Examinations.
XVI. 371	.....	.....	.....	Volcanic Coal from Arracan. <i>Piddington.</i>
380	Eruption on the Banks of the Nerbudda. <i>Lt. Briggs.</i>			
382	White sea. <i>Mr. G. F. Pearson.</i>			
477	Notes from Gooty to Hydrabad. <i>Newbold.</i>			
499	Notice of a Volcanic Island on the Coromandel Coast. <i>Annual Register of 1758. Piddington.</i>			
619 } 667 }	Geology of Singapore, <i>J. R. Logan, Esq. M. D.</i>			
711	.....	.....	.....	Ferruginous Spherules from Bundelcund. <i>Piddington.</i>
713	.....	.....	.....	Deo-Monnees of Assam. <i>Pid- dington.</i>
717	.....	Coal from Junkseylon. <i>Govern- ment of Bengal.</i>		
794	Glaciers of the Pindur, Kumson Himalaya, (map, p. 1002). <i>Lt. Strachey, B. E.</i>			

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses and Examinations.
XVI. 1129	.....	.....	.....	.....
1135	Geological and Mineralogical Observations, Huzaree District. <i>Abbott.</i>	.....	.....	Newboldite. <i>Piddington.</i>
1138	.....	Emerald Mines of Sakeyt, Egypt. <i>Newbold.</i>	.....	.....
1266	.....	.....	Fossil bones near Subathoo. <i>Vicary.</i>	.....
XVII. 57	Angami Naga Hills. <i>J. W. Masters.</i>	.....	.....	Ball Coal of Burdwan, 1st Notice. <i>Piddington.</i>
59	.....	.....	.....	.....
89 } 489 }	Coal Beds in the Nansay Hills. <i>Capt. J. E. Rogers, I. N.</i>	.....	.....	.....
137	On probable Metalliferous deposit in the sub-Himalayas. <i>R. H. Irvine, M. D.</i>	.....	.....	.....
151	.....	Notice of the Great Diamond in the possession of the Nizam. <i>Piddington.</i>	.....	.....

Vol. Page.	Geological.	Mineralogical.	Palaeontological.	Analyses and Examinations.
355	Observations on the Grand Trunk Road. <i>J. D. Hooker, M. D.</i>			
500	Report on the Salt Range. <i>A. Fleming, M. D.</i>			
538	.....	.....	.....	Meteoritic Iron from the Kur-ruckpore Hills. <i>Piddington.</i>
584	Eastern District of Egypt. <i>Hekhekian Bey.</i>			
703	.....	.....	.....	Remarks on Ball Coal. <i>J. Homfray.</i>
XVIII. 170 } Part I. }	.....	.....	.....	Coal from the Prisco Pit, Newport, S. Wales. <i>Piddington.</i>
171	.....	.....	.....	Supplementary Note on Capt. Sherwill's Meteoric Iron. <i>Piddington.</i>
172	Earthquakes in Assam. <i>Major Jenkins.</i>			
287	Snow Line Himalayas. <i>Strachey.</i>			
360	Trip through the Kohistan of the Jullunder. <i>Parish.</i>			

JOURNAL OF THE ASIATIC SOCIETY.

Vol. Page.	Geological.	Mineralogical.	Palæontological.	Analyses and Examinations.
XVIII. 410 } Part I. }	Deviation of the Compass near Saugor, Bundelcund. <i>Piddington</i> .			
412	.....	.....	.....	Ball Coal of the Burdwan Mines. Second Notice. Ma- trix Coal. <i>Piddington</i> .
661	Trip to Pind Dadun Khan on the Salt Range. <i>Dr. Fleming</i> .			
694	Note on Perpetual Snow Line. <i>Cunningham</i> .			
761	Physical Geography of the Himalayas. <i>Hodgson</i> .			
954	Snow Line of the Himalaya. <i>Hutton</i> .			
XIX. 75	....	Ball Coal of the Burdwan Mines. Third Notice. <i>Piddington</i> .		
77	.....	.....	.....	Analyses of Ball Coal Third Notice. <i>Piddington</i> .
77	.....	Iron of the Dhunakar Hills. <i>Torrens</i> .		
79	Trip to the Niti Pass. <i>Strachey</i> .			

Vol. Page.	Geological.	Mineralogical.	Paleontological.	Analyses and Examinations.
136	Note on Patna Boulders. <i>Capt. Omanney, B. E.</i> See also p. 488. <i>Piddington.</i>	.....	.....	.....
139	Coal Strata of Wadi Araba, Eastern Egypt. <i>Hekhekian Bey.</i>	.....	.....	Orange-Yellow Earth from Sikkim. <i>Piddington.</i>
143	.....	.....	.....	Calderite, a new rock. <i>Piddington.</i>
145	.....	.....	.....	Coal from Laboan. <i>Piddington.</i>
156	.....	.....	.....	.....
190	Extracts from <i>Dr. Voysey's</i> Private Journal, No. II.	.....	.....	.....
212	.....	.....	.....	.....
217	Formations and Lead Mines of Kohil-el Terrafeh. <i>Hekhekian Bey.</i>	.....	.....	.....
269	Extracts from <i>Dr. Voysey's</i> Private Journal, No. III.	.....	.....	.....
302	On the General Descent and Upheaval in the Northern Hemisphere. <i>Dr. G. Buist.</i>	.....	.....	.....
429	Report on the Spiti Valley. <i>Capt. W. C. Hay.</i>	.....	.....	.....
452	.....	.....	.....	Haughtonite, a new Mineral. <i>Piddington.</i>
488	.....	.....	.....	Corundum and Fibrolite. <i>Piddington.</i>

*The Zafarnámah : a Dialogue between Aristotle and Buzurjumíhr.—
Translated from the Persian by Bábu NARASINHA DATTA.*

Buzurjumíhr.—How should one's life be spent ?

Aristotle.—In endeavouring to gratify the hearts of others ; for God is pleased with him, who endeavours to please others.

B.—How can one be said to please another's heart ? *A.*—By submitting one's self to the will of God ; as one cannot please a king without obtaining the good opinion of his dependents, so God is not pleased with one unless he be good to his creatures.

B.—What should one's occupation be ? *A.*—The acquisition of knowledge.

B.—What is the effect of the acquisition of knowledge ? *A.*—The acquisition of knowledge makes mean, great ; poor, rich ; stupid, acute.

B.—How can the right path be known ? *A.*—By the light of knowledge.

B.—How is the way to heaven secured ? *A.*—By conquering one's passions.

B.—How can one conquer them ? *A.*—By eating little.

B.—How can one live by eating little ? *A.*—By lessening one's food by degrees every day.

B.—What is meant by the world ? *A.*—All that is fleeting and useless for the future.

B.—How can one procure honor ? *A.*—By eating little, talking little, and injuring little ; for the wise have said, " Little eaters are less injurious than much eaters."

B.—Upon whom is hardship to be imposed ? *A.*—Upon one's ownself.

B.—What is that thing which being sown in one place is reaped at another ? *A.*—Doing good in this world, of which the fruit is enjoyed in the next.

B.—How can one please God ? *A.*—By pleasing his parents.

B.—Whom should one consult ? *A.*—The wise.

B.—Who is wise ? *A.*—He who, after hearing much and thinking judiciously, says little.

B.—When should one speak ? *A.*—When no one else is speaking.

B.—How can a virtuous person be known? *A.*—By three things : learning, munificence and a smiling countenance.

B.—Who is munificent? *A.*—The donor of a ready gift.

B.—What is the utmost extent of generosity? *A.*—The giving away of all that is in one's possession.

B.—What is the worst of actions? *A.*—Absenting one's self from the assembly of the learned.

B.—What is the best of actions? *A.*—To be present at the meeting of the learned, and assisting the infirm and the necessitous.

B.—Who are learned? *A.*—They who know what God is.

B.—Who are they that know what God is? *A.*—Those who injure no one.

B.—Who are those that injure no one? *A.*—Those who think themselves inferior to others.

B.—How can one attain this? *A.*—By frequenting the society of sages.

B.—What should one learn from the wise? *A.*—To please God.

B.—What should one do to please God? *A.*—Obey his will.

B.—What are the marks of obedience? *A.*—Resignation and thanksgiving.

B.—Who is worthless? *A.*—A loquacious fellow.

B.—Who is disappointed? *A.*—He who is deficient in adoration.

B.—What is intellectual light? *A.*—The remembering of death.

B.—What is intellectual darkness? *A.*—Devotion to eating and sleeping, and gold and silver.

B.—How should one consider himself in the world? *A.*—Like a traveller in his way.

B.—How can one reach his journey's end? *A.*—By being himself unencumbered.

B.—What is dearer to one than life? *A.*—Religion to the faithful ; wealth to the impious.

B.—How can one be known? *A.*—By his works.

B.—When does truth resemble falsehood? *A.*—When an old man recites the valorous feats of his youth, or a pauper relates the liberal actions of his better days.

B.—How can one avoid a bad friend? *A.*—By asking what is wanted.

B.—What governs a woman? *A.*—Compulsion.

B.—What does a degenerate son resemble? *A.*—A superfluous finger, which, if lopped off, gives pain, if suffered to grow, becomes a blemish.

B.—What augments friendship? *A.*—Inquiring about one in his absence.

B.—What withholds friendship? *A.*—Borrowing money; for the wise have said, "Borrowing is to friendship, what a pair of scissors is to a piece of cloth."

B.—How should one drink? *A.*—Slowly and in small draughts.

B.—How should one rise from his meals? *A.*—With some remanuis of appetite.

B.—What beside aliment preserves health? *A.*—Three things: viz. wearing clean apparel, perfuming one's self, and seeing one's friends.

B.—What is the cause of the immutability of speech? *A.*—Veracity.

B.—Who is agreeable to all persons? *A.*—He who speaks the truth.

B.—Who is a speaker of truth? *A.*—He who does not tell a lie.

B.—Whether is truth or gratitude to be preferred? *A.*—There is no gratitude without truth.

B.—Who is patient? *A.*—He who has forbearance in anger.

B.—What makes one righteous? *A.*—Good and lawful food.

B.—What is good and lawful food? *A.*—That which is earned by an honourable profession.

B.—What is the best of professions? *A.*—Agriculture.

B.—What is the worst of professions? *A.*—The selling of wine.

B.—What is the distinction between man and woman? *A.*—The same as between heaven and earth, for unless the former rain, the latter cannot prove fruitful.

B.—What makes one free from the love of the world? *A.*—Resignation and thanksgiving.

B.—What does association produce? *A.*—A good or bad impression on one's mind.

B.—How should one receive a guest? *A.*—With kindness; that is, one should first welcome and then entertain him.

B.—What is the antidote of sin? *A.*—Repentance.

B.—What should be the constant duty of one who is wealthy?

A.—The distribution of food to the hungry.

B.—What should a beggar do ? *A.*—Be patient and grateful.

B.—What should a farmer's business be ? *A.*—To depend entirely upon God and relinquish difficulties.

B.—What is fortune ? *A.*—It is that from which proceeds all that one receives.

B.—What is fate ? *A.*—It is that which deprives one of what he needs.

B.—Who is intelligent ? *A.*—A seeker of the true purport of things.

B.—Who is unintelligent ? *A.*—He who is inattentive to the true purport of things.

B.—What is youth ? *A.*—Health.

B.—What is age ? *A.*—Weakness or inactivity.

B.—What befits youth ? *A.*—Modesty and intrepidity.

B.—What befits age ? *A.*—Deliberation.

B.—Who holds intercourse with God ? *A.*—He who is constantly occupied in devout meditation.

B.—Who is esteemed by all ? *A.*—He who distributes justice impartially.

B.—What is love ? *A.*—Love is a pearl.

B.—What is a lover ? *A.*—A lover is a diver.

B.—Should a guest sleep or wake ? *A.*—He should wake : for sleep is the brother of death.

B.—What improves comprehension ? *A.*—Disquisition.

B.—What begets heart-break ? *A.*—Disappointment.

B.—What is the fruit of virtue ? *A.*—The attainment of one's wishes.

B.—What ennobles one ? *A.*—Continence.

B.—What is continence ? *A.*—The knowledge of the pure esculent.

B.—What leads to the knowledge of the pure esculent ? *A.*—The internal eye.

B.—What is the internal eye ? *A.*—The eye of the mind.

B.—How can one see with the eye of his mind ? *A.*—By being perfect.

B.—What makes one perfect ? *A.*—Maturity.

B.—How is maturity acquired ? *A.*—By erudition and discrimination.

B.—What is erudition ? *A.*—A consummate knowledge of the precepts of religion.

B.—In what does discrimination consist? *A.*—In leading a virtuous life.

B.—What is the height of ignorance? *A.*—Injustice.

B.—What is injustice? *A.*—Acting unworthily of one's self.

B.—What pleases one? *A.*—His own offspring.

B.—What displeases one? *A.*—Death.

Literary Intelligence.

Mr. N. Bland of Randell's Park is preparing for publication a new edition of the *Dywan* of Háfiz, with the *Life* of the poet in Persian. No man, either in India or in Europe, is better able to give us a correct edition of the greatest of the lyrical poets of the Persians than Mr. Bland; he possesses a most profound knowledge of the Persian language and has ampler materials for correcting the text at his command than any body else.

The same gentleman anticipates that he will be able next winter to lay the first volume of his history of the Persian poets before the public. It will contain a resumé of all available *Tazkirahs*, and the number of poets of whose lives and writings it will give an account, must therefore far exceed five thousand.

Mr. E. Hall of the Benares College, intends to compile a *Hindustani and Hindi Dictionary*. With due respect for the excellent work of Mr. Shakespear, I am certainly of opinion that such a work is needed, Shakespear's book, being a work of learning, is particularly poor in idioms and local terms. Many things have different names in different places. Thus at Lucknow the convex tile which in roofing is placed upon two concave tiles *کھپرا* to connect them, is called *گھونگھا* and at Delhi, it is called *اکویا*. In reference to the want of idiom, I am convinced that not even a good *Hindustani* scholar could, with the help of Shakespear, read the *Dywan* of Myr Yár 'Alyy, it being written in the language of ladies.

Native literature offers us unfortunately very few materials towards *Dictionary*, they are the *Nafáyis alloghát*, compiled by *Awlad aldyn*

Akmal Belgrámy in A. II. 1253, and printed in the Moçtafá Press at Lucknow in A. II. 1257. It is a quarto volume of 940 pages, and contains chiefly Hindi words with their meaning in Persian and Arabic and with illustrations from poets. So great is the demand for a work of the kind, that this book has been for several years out of print, and two abridgments have been printed of it; one the *Anfas alnafáyis* in A. II. 1263, and the other the *Montakhab alnafáyis* in A. H. 1264.

Makhzan alfawáyid a collection of Hindustani idioms illustrated by passages from poets, compiled by Irshád, and lithographed at Delhi, in 1845, fol. 357 pages. This is a very valuable book.

Grammar of the Urdu language explained in Urdu by Mawlawy Imám Bakhsh, lithographed at Delhi, 1845, 8vo. 295 pages. The third chapter of this book contains a collection of words, and the fourth, proverbs and idioms.

Tohfát al-Hind by Myrzá Khán, a son of Fakhr aldyn Moḥammad. It is divided into a preface, which treats on the letters of the Hindus (the Devanagary alphabet), seven chapters and a conclusion; the first five chapters treat on the metre, rhyme, rhetoric, loves and music of the Hindus. The sixth treats on the science called Kôk. This chapter is a Persian translation of a well known Sanscrit work. The eighth chapter treats on physiognomics according to the Hindus, and the appendix on lexicography; but the preceding chapters contain the explanation of a very great number of Hindi terms. This book has never been printed and MSS. are rare, but it seems that Mr. Shakespear has carefully used it. The whole work is to be considered a free translation from the Sanscrit and Hindi into Persian.

Gharáyib alloghát, Hindi terms explained in Persian by 'Abd al-Wasy of Hansy. This book has not been printed: there exist MSS. of it which contain merely an abstract, and have sometimes a different title.

It is very desirable that a Hindustani Dictionary should contain those English terms of which the orthography has been fixed in Hindustani such as "inch" "feet" the names of the months, &c. also that it should be to some extent encyclopædial, that is to say, contain not only explanations of words but also of things. Mr. Hall will find the *Kachsháf içtilákhát alfonún*, or explanation of the terms used in

sciences, invaluable for this purpose, though it contains merely Arabic terms. It is the work of Moḥammad A'la of Saharanpore, who was engaged on it sixty years, and completed it in A. H. 1158. He is dead. The Arabic and Persian medical terms are in the *Bahr aljawáhir*. Hindi technical terms are in Persian translations of Sanscrit, and Hindi works which are rather numerous, and treat on various subjects, such as cookery, the occult sciences, the manners of the Jogies, songs, medicine, the veterinary art, &c. and they are intended by the translators to illustrate the manners and sciences of the Hindus.

In the last number of the Journal, when writing about the *Satyárnab*, we expressed a wish, that the Vernacular Literature Committee of Calcutta should publish an illustrated Bengali periodical in the plan of the *Penny Magazine*. We have since heard that such a work is already in the press, and will be published early in October next.

The *Purnachandrodaya* press has lately issued an edition of Sir William Jones's translation of the *Hitopadesha*.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR MAY, 1851.

The Monthly General Meeting of the Society, took place on the 7th May at the usual hour and place,

Hon'ble SIR JAMES COLVILE, President, in the chair.

The proceedings of the previous Meeting were read and confirmed.

The Librarian submitted a list of Books presented to the Society since its last Meeting.

A letter was read from Prince Gholám Mohammad, presenting a copy of the *Wellesley Despatches*, for the Library.

From Bábu Peary Chand Mittra, Librarian, Calcutta Public Library, forwarding a copy of a Persian Book entitled *Hadyqat al Alam*, presented to the Society by Nawáb Seráj al Mulk Bahádur, of Hydarábád.

The following gentlemen, proposed and seconded at the April Meeting, were balloted for and elected ordinary Members:—

H. Woodrow, Esq. M. A.

Joseph Fayrer, Esq. M. D.

Candidates for election.

Col. P. B. Cautley ; proposed by A. Grote, Esq. seconded by Major Baker.

F. Oldham, Esq. ; proposed by B. J. Colvin, Esq., and seconded by A. Grote, Esq.

Notes were received from Andrew Hay, Esq., Dr. R. Young, and Major H. M. Durand, intimating their desire to withdraw from the Society.

The President proposed for the sanction of the Society, in accordance with the notice given at the last Meeting, that the Council be authorised

to expend from the Oriental Fund, a sum not exceeding five hundred, Rs. (500), in getting such of the Persian, Arabic, and Urdu, Manuscripts as require to be newly bound—rebound, also in getting such of them as require transcription—transcribed. The proposition was agreed to.

He next laid on the table a letter from Capt. Hayes resigning the office of Secretary to the Society, and proposed that the Society express their grateful sense of the services which, in the capacity of Secretary, Capt. Hayes has rendered to the Society.

The motion having been seconded by J. R. Colvin, Esq., was carried unanimously.

The President then stated that Dr. A. Sprenger having expressed his willingness to accept the office of Secretary, the Council had appointed that gentleman a Member of Council and Secretary in the room of Captain Hayes, subject to the confirmation of the Society, and moved that that appointment be confirmed.

The motion was confirmed.

An order of the Council granting leave of absence for six months to the House Sergeant, F. Halligan, on medical certificate, was announced for confirmation by the Society. Ordered that the leave granted to the House Sergeant be confirmed.

In consideration of the changes which the new Code of Bye Laws, and in particular Bye Law 52, has made in the organization of the Council, the President tendered on behalf of himself and his colleagues in the Council, their resignation to the Society, and proposed that the June Meeting be made special for the election of a new Council. The proposal was adopted, and the Council was requested to continue in office until the election of their successors.

Mr. Mitchell gave notice that he will, at the next Meeting, call the attention of the Society to the following passage in the last number of the Journal, and move that Mr. Piddington be called upon to withdraw or explain it.

“It may be proper, specially in reference to certain insinuations, which I refrain from qualifying, made at the July Meeting of the Asiatic Society, regarding the Museum of Economic Geology, to preface this report with the following letter, &c.”

The following communications were then laid before the Society.

1st. An inscription of a decayed Mosque, from Mr. Beanfort. Mr. C. Beadon supplied the following details regarding it : "The inscription is taken from a decayed Mosque at Burh, in the district of Patna ; the stone in which it is carved might easily be obtained at no other cost than the expence of carriage from Burh to Calcutta."

2nd. The President stated the substance of a private letter which he had received from Major Lang, with a drawing of the Gate of the Adynah Mosque at Gour, taken under the superintendence of Captain Layard, Executive Officer at Berhampore, and recommended that a letter be addressed to the Government of Bengal, expressing the hope of the Society that the Government will give permission to Captain Layard to visit Gour, whenever he can do so consistently with the performance of his official duties, for the purpose of prosecuting his researches amongst the ruins, and procure drawings of the same. Resolved accordingly.

3rd. From W. Seton Karr, Esq., Under Secretary to the Government of Bengal, a letter enclosing, for such use as the Society may think proper, a paper in original, entitled "Notes on the Dophlas and the peculiarities of their language."

4th. From Capt. Drury, communicated by Major General Cullen, Travancore, through the Hon'ble W. Elliott, a paper on Roman Coins discovered in Cannanore, on the Malabar coast.

Resolved—that the thanks of the Society be conveyed to the Major General, and the Hon'ble W. Elliott, and that he be requested to favor the Society with as complete a series of the coins as may be convenient, and to allow the loan of a complete series to have a set of electrotype casts made of them.

5th. From Dr. Bedford, Rámpur Bauleah, a valuable paper entitled, Suggestion for the extension, and perfection of vaccination simultaneously with a systematic study of epidemic and endemic diseases in India. Thanks were voted to Dr. Bedford, and his paper was referred to the Council.

6th. From E. Blyth, Esq., Notice of a collection of mammalia, birds and reptiles, procured at or near the station of Cherrapunjí, in the Khasia Hills, north of Sylhet.

Confirmed, June 4th, 1851.

J. R. COLVIN.

FOR JUNE, 1851.

The Society met on the 4th instant at half past 8 P. M.

J. R. COLVIN, Esq., Senior member of the Council present, in the Chair.

The proceedings of the previous meeting were read and confirmed.

Read a letter from Captain Skinner, presenting 12 copper Coins found at Ambugamma, on the south of Adam's Peak, forwarded through Mr. Beadon. Mr. Skinner observes that "they were discovered in cutting a very high bank, for a road. A few coins of the same character were a short time ago discovered in Jaffna." These coins appear to belong to ancient Hindu Dynasties of Ceylon and their counterparts have been published in Marsden's *Numismata Orientalia*, but without any clue to their exact date.

Mr. Beadon presented a Bactrian silver coin, stating that it had been received from central India.

Ordered that this coin be placed in the Museum of the Society, and further enquiry be made as to the place in which it was found.

The Librarian submitted a list of presentations to the library.

The following gentlemen, proposed for election at the last meeting, were balloted for and elected ordinary members.

Lieut.-Col. P. B. Cautley.

Professor F. Oldham.

Mr. Mitchell called the attention of the Society, according to notice given at the last meeting, to the following passage in the Journal for January last, and moved, that Mr. Piddington be called upon to withdraw or explain it.

"It may be proper, especially in reference to certain insinuations, which I refrain from qualifying, made at the July meeting of the Asiatic Society, regarding the Museum of Economic Geology, to preface this report with the following letter."

It was explained by the Chairman on the part of the Council, that they regretted the appearance of the expression objected to, in the Journal of the Society, and that they would certainly have struck them out, had their attention been called to them before publication.

Mr. Piddington expressed his regret for the inadvertent and hasty use of such expressions.

Upon these explanations Mr. Mitchell withdrew his motion.

The Council submitted to the favorable consideration of the Society, an application from Bábu Rájendralál Mittra for the employment of a Pandit at Rs. 20 per mensem, payable out of the Oriental Fund, to copy the *Lalita Vistara* and to assist him in preparing that work for the press; the allowance to be continued for one year. Sanctioned on the proposal of the Chairman, seconded by Dr. A. Sprenger.

Notice was given of a motion, for consideration at the next meeting, by Rev. J. Long, that a report be rendered to the Society of the sum expended during the last three years out of the Oriental Fund on the following objects:—

The pay of the Editor or Editors; allowance granted to Pandits; the sum appropriated to printing; works printed; and the amount realized by sale of the publications.

Reports from the Curators were laid on the table.

The following communications were laid before the Society—

1st.—On the adaptation of the Aneroid for the purposes of surveying in India, by Dr. G. Buist, Bombay.

2nd.—On the influence of the Moon on the weather, by J. Middleton, Esq.

3rd.—An English translation of the *Vichitra Nátak*, by Capt. G. Siddons.

4th.—A *Conspectus of the Ornithology of India, Burma and the Malayan peninsula, inclusive of Sindh, Asam, Ceylon and the Nicobar Island*, by Mr. E. Blyth.

5th.—A translation of the *Zafarnámáh: a Dialogue between Aristotle and Buzurjumihir*; by Bábu Narasiñha Datta.

6th.—A notice of the *Manda Cave Temples*, by W. Roberts, Esq. Joint-magistrate of Mirzapur.

Ordered that the Secretary refer to the Secretary to the Government of India, Home Department, and to the Secretary to the Government of the North Western Provinces, if necessary, for the drawings alluded to by Mr. Roberts.

7th.—Extract from a Journal up the Koladyn-river, Zillah Akyab, Arracan, in February, 1851, by Captain S. R. Tickell, B. N. I.

The meeting was now declared special for the election of a new Council and Office-Bearers, and Rev. W. Kay and Mr. Grote, were appointed scrutineers.

The following was the result of the ballot.

President, Sir James Colville.

Vice-Presidents, Sir H. M. Elliott, K. C. B. Dr. W. B. O'Shaughnessy, and Welby Jackson, Esq.

Secretary, Dr. A. Sprenger.

Council, Sir James Colville, Kt., Sir H. M. Elliot, Dr. W. B. O'Shaughnessy, Welby Jackson, Esq., J. R. Colvin, Esq., Rev. Principal Kay, C. Beadon, Esq., A. Grote, Esq., Bábu Ramgopaul Ghose, S. G. T. Heatly, Esq., A. J. M. Mills, Esq., Dr. A. Sprenger, Major W. Baker, Capt. W. H. L. Thuillier, and H. Walker, Esq.

Confirmed, 2nd July, 1851.

J. W. COLVILLE.

Report of the Curator of the Museum of Economic Geology for June.

GEOLOGY AND MINERALOGY.

I have put into the form of a paper for the Journal my report on the Shalka Meteorite, which has the peculiarity of being one of those in which no Nickel is to be found, and but a small portion of Chromate of Iron. As we possess however, very complete details of its fall, and its structure and composition are very remarkable, the acquisition of this valuable specimen adds something to our knowledge of those wonderful and mysterious bodies.

Captain W. S. Sherwill, Revenue Survey, has sent us some very handsome specimens of the Natrolite variety of Zeolite, in very fine acicular crystals in trap rock, from the Rajmahal Hills.

I have handed to our Secretary for publication a continuation to the present day of my Index to the Geological, Mineralogical and Palaeontological papers and Analyses from Vol. XI. of our Journal which was there brought down to the close of Vol. X. As affording at once a condensed view of the Society's labours in these great branches of its pursuits, and to the student and speculator immediate reference to every paper on the subject which engages their attention, these papers are found alike curious and useful.

I have also put into the form of a paper for the Journal, the description and examination of HIRICINE, a new resin, which may be recent or mineral;

for all our information regarding it amounts to this, that I have received it from Mr. Theobald, Senr. who informs me it comes from Ava. He is in hopes of procuring more for us and full information of the locality. The peculiar properties which distinguish it from all other resins are its remarkable goat-like odour when heated, and a sort of double combustion, this last is a highly curious property which I have fully described in the paper.

ECONOMIC GEOLOGY.

Captain Haughton of the S. W. Frontier Agency, has sent us a very good specimen of surface coal from a new locality, which he calls Gomeah, near Hazareebagh, accompanied by some of the rocks which are analogous to those of the Burdwan mines. He has also sent us some common rocks and iron ores from a place called Koberma (or Hurruma by Tassin's Map) and with these, three specimens of Mica, white, brown and red; the two last are particularly fine specimens. Captain Haughton states them to be from mines on a forfeited estate which is annually rented, and the tenant "is bound to present yearly to Government one piece of good shape on renewal of his lease as a specimen of the quality produced."

Captain Wallage of the H. C. Steamer *Nemesis*, has sent us some very fine specimens of Fibrous Antimony from the Sarawak mines.

FOR JULY, 1851.

The monthly General Meeting of the Asiatic Society for July, 1851, was held on the evening of Wednesday the 2nd instant.

Sir JAMES COLVILE, President, in the Chair.

The proceedings of the last meeting were read and confirmed.

A letter was read from Messrs. Allen and Co., London, presenting, on behalf of Major Abbott, a copy of his *Journey to Khiva*.

The President of the Natural History Society of Batavia, presented a copy of the *Transactions* of that Society.

Chevalier Casella, Consul General of his Majesty the King of Sardinia, presented in the name of his Majesty, 3 vols. of engravings representing the paintings and pictures in the Royal Collection at Turin.

Resolved that the Secretary be directed to return thanks, through

the Consul, to his Majesty the King of Sardinia, for the valuable present, and to enquire to which of the public institutions of Turin, the Society can appropriately offer its publications.

The Librarian submitted a list of presentations to his department.

Rev. J. Long moved, according to notice given at the last Meeting, that a report be rendered to the Society of the sum expended during the last three years, out of the Oriental Fund on the following objects: viz. The pay of an Editor or Editors; the allowance granted to Pandits; the sum appropriated to printing; works printed; and the amount realized by sale of the publications. The motion having been seconded by the President was carried *nem. con.*

The President announced that the Council have appointed the following Committees, viz.

1st.—*Committee of Finance*, to consist of Messrs. A. J. M. Mills, A. Grote, and S. G. T. Heatly.

2nd.—*Committee of Library and Journal*, to consist of Rev. W. Kay, Captain Thuillier, Mr. J. R. Colvin, Mr. Heatly and Dr. Walker.

3rd.—*Committee of Oriental Literature*, to consist of Messrs. J. R. Colvin, Dr. Roer, Mr. C. Beadon, Rev. J. Long, Rev. W. Kay and Babu Ramgopaul Ghose.

4th.—*Committee of Natural History*, to consist of Dr. Falconer, Dr. Walker, Major W. C. Baker, Mr. A. Grote and Mr. A. Mitchell.

Communications were read—

1st.—From H. Cope, Esq., announcing the formation of an Agricultural Society, in the Panjab.

Ordered that the future publications of the Society, viz. the Journal, and the Bibliotheca Indica be sent to it.

2nd.—From W. Seton Karr, Esq., Under Secretary to the Government of Bengal, intimating that his Honor the Deputy Governor of Bengal has been pleased, in compliance with the wish of the Society, to permit Captain Layard, to prosecute his researches amongst the ruins of Gour.

3rd.—From Bharatachandra Siromani, Professor of Law, in the Sanscrit College of Calcutta, soliciting patronage to an edition of the *Dáyabhága* published by him.

4th.—From Mr. F. E. Hall, submitting a list of works lately published in Benares.

5th.—From Captain Sherwill, enclosing two papers for the Journal, one entitled, “Notes of a Tour through the Rajmahal Hills,” and the other “A sketch of the Behar Mica Mines.”

Ordered for publication in the Journal.

6th.—From Major Hannay, Ásám, submitting a brief notice of the Sil Háko, or stone Bridge, in zillah Kámrup, with a drawing. Referred to the Committee of Journal and Library.

7th.—From Captain Dalton, Gauhatty, forwarding a paper entitled “Notes on the Mahápurushyas or a sect of Vaishnavas, in Ásám.” Referred to the same.

8th.—From Captain Siddons, continuation of his translation of the Viehitra NátaKa.

9th.—From Captain Fytehe, a short description of the site and of the circumstances under which he found the slab of stone with an inscription in the Chandra Gupta (?) character, presented by him to the Society, in November last. Referred to the Journal Committee.

10th.—A Memorandum from the Librarian suggesting that an original Map of Sikim by Dr. Hooker, a reduced copy of which has been offered to the Society by Captain Thuillier, be printed in the Journal. Ordered for publication.

Thanks were voted for the above donations and communications and the meeting adjourned.

Confirmed with the exception of the resolution proposed by the Rev. J. Long and seconded by the President, which, in consequence of an informality, is not confirmed.

(Signed)

JAS. COLVILE.

3rd August, 1851.

FOR AUGUST, 1851.

The Society met on the evening of the 6th instant, at the usual hour. SIR JAMES COLVILE, President, in the Chair.

The proceedings of the previous meeting were read and confirmed with the exception of the Resolution proposed by the Rev. J. Long and seconded by the President, which in consequence of an informality was not confirmed, but the Council, having adopted it as a motion of

their own, brought it forward and it was confirmed as a motion of the Council. The returns required by that resolution were accordingly ordered to be submitted to the next meeting.

Donations were received :—

1st. From Bábu Prassanakumar Tagore. A table of succession according to Hindu Law.

2nd. From Dr. Mann, through Captain Thuillier. A map of Canton and its environs, in Chinese, found in the Bogue Forts.

It was proposed by the President, seconded by Major Baker, and resolved, that the thanks of the Society be conveyed to Dr. Mann, for the present.

3rd. From Lieut. E. G. Pearse. Fac-simile of an antique relic found in a tope on the banks of the Hunnu river in the Hazara country.

4th. From General Cullen, Travancore, through the Hon'ble W. Elliott. Eight Roman gold coins. General C. also submitted fifteen other Roman gold coins for the inspection of the Society and in order to enable them to secure electrotype casts of the same.

The President proposed that the best thanks of the Society be conveyed to the General and to the Hon'ble W. Elliott, for this handsome donation. The motion, having been seconded by Mr. C. Beadon, was carried *nem. con.*

5th. From Rájá Pratáphchand Sinha. A whip snake.

The Librarian submitted a list of books presented to the Society during the month of July last.

The Zoological Curator's Report for the last month was received.

Lieut. Faithful was named for ballot at the next meeting : proposed by Mr. J. R. Colvin, and seconded by the President.

Communications were received :—

1st. From B. H. Hodgson, Esq. Darjiling, enclosing a Supplementary notice of the Shou. Ordered to be printed in the Journal.

2nd. From Captain G. Siddons, forwarding continuation of his translation of the Vichitra Nátaka.

3rd. From Dr. E. Röer, remarks on the Nyáya Philosophy.

4th. From R. N. C. Hamilton, Esq., Resident at Indore, a report on the Turan Mull hill. Referred to the Journal Committee.

5th. From Chevalier Joseph Cassella, Consul General of His

Majesty the King of Sardinia, in reply to the Society's resolution of July last, regarding the King of Sardinia's present.

The President proposed that the publications of the Society be presented, through Mr. Chevalier Cassella, to the Accademia Reale delle Scienze in Turin. The motion was seconded by Mr. Beadon and carried.

6th. A letter from Dr. Wilson to Dr. Röer, regarding the Bibliotheca Indica, was read and ordered to be referred to the Philological Committee.

Confirmed, 3rd Sept., 1851.

(Signed) J. R. COLVIN.

Zoological Curator's Report for August Meeting.

Since the publication of my last Report (p. 213, *ante*), the following specimens have been presented for the Society's museum.

1. From R. W. G. Frith, Esq. Selections from a collection of skins and entire specimens in spirit, procured at Cherra Punji in the Khasya hills; an account of which is given in a paper submitted to the Society at a previous meeting. Also a pair of *Platydictylus gecko*, procured at Dacca.

2. From Capt. Barry, of the Arracan Local Battalion. A skin of *Sciurus bicolor*, peculiar in its colouring.

3. W. Robinson, Esq., Assam. A specimen of *Pteromys magnificus*, and various shells, comprising *Anodonta soleniformis*.

4. From Capt. W. S. Sherwill. Specimens of shells collected on the summit of the Rajmahal hills, comprising an *Achatina*, new to the Society's collection, and, subsequently, another collection from Darjiling, comprising a *Cyclostoma* which also is new to our Museum.

5. From Capt. Croker, H. M. 24th Regiment. Selections from a collection of bird-skins procured at Wuzirabad, supplying the Society with good specimens of certain species of which we previously possessed but very inferior examples.

6. From the Barrackpore Menagerie. Two dead examples of *Felis bengalensis*.

7. From C. S. Bonnevie, Esq., Christiania. A few Norwegian specimens, consisting of the skin of a young kitten of *Felix lynx*,—a fine example of *Nyctæa nivea* (the great Snowy Owl), in a different phase of plumage from the specimen previously in the museum,—*Athene passerina* (vera),—*Philomachus pugnax*,—*Podiceps cristatus*, winter dress,—*Uria troille*, do.,—*Grylle grænlandica*, young,—and *Mergellus albellus*.

8. From myself. A remarkable crab (apparently a new species of *Halimus*), and specimens of an *Echinus* from the Arakan coast.

9. From Bábu Rájendra Mallika. A fine adult male of *Gazella subgutturosa*, the *Ahu* of Persia and Afghanistan, in its short summer pelage,—a phase in which I recognize the *G. Christii*, Gray, stated to be from the Scindian deserts. This animal was received from Bussora when young, together with a young female which at its death was also presented for the museum by Bábu Rájendra Mallika.

E. BLYTH.

Asiatic Society's Museum, August 2nd, 1851.

LIBRARY.

The following books have been added to the Library during the months of April, May, June and July last.

Presented.

The Palms of British East India, by the late William Griffith, Esq. arranged by John McClelland, Esq. Calcutta, 1850, fol. (2 copies).—PRESENTED BY THE GOVERNMENT OF BENGAL.

The World as it is, shewing the Territories, Colonies, Dependencieis, Population, Revenues and Resourees of the Principal nations of the Earth. Arranged from several sources and translated by Dr. E. Balfour.—BY THE GOVERNMENT OF BENGAL.

A Table of succession, according to the Hindú Law as prevalent in Bengal. Compiled by Bábu Prassanna Kumár Tagore.—BY THE COMPILER.

The Oriental Baptist, Nos. 54, 55, 56.—BY THE EDITOR.

The Calcutta Christian Observer, for May, June, July and August, 1851.—BY THE EDITORS.

The Upadeshaka, Nos. 53, 54, 55-6.—BY THE EDITOR.

The Oriental Christian Spectator for March, April, May, June and July, 1851.—BY THE EDITOR.

Letter to the Secretary to the Government of Bengal, from J. McClelland Esq. Secretary, Central Committee of Art and Industry, on the Indian Contribution to the Great Exhibition.—BY J. MCCLELLAND, Esq.

Meteorological Register kept at the Surveyor General's Office, Calcutta, for the months of March, April, May, June and July, 1851.—BY THE DEPUTY SURVEYOR GENERAL.

Tattwabodhiní Patriká, Nos. 93, 94, 95, and 96.—BY THE TATTWABODHINÍ SABHA'.

History of Bengal, from the accession of Seráj-ud-dowlah to the Vice-Regalty of Bengal to the time of Lord William Bentinck, translated into

Bengali from Marshman's History of Bengal. By Paudit Iswarachandra Sarmâ.—BY THE TRANSLATOR.

Journal of the Indian Archipelago for February, March, April, May, June and July, 1850.—BY THE EDITOR.

Ditto ditto for May and June, 2 copies.—BY THE GOVERNMENT OF BENGAL.

Narrative of a Journey from Herant to Khiva, Moscow and St. Petersburg during the late Russian invasion of Khiva. By Capt. James Abbott, 2 vols. London, 1843, 8vo.—BY THE AUTHOR.

La Reale Galleria di Torino illustrata da Roberto D'Azeglio Direttore, della Medesima, Dedicata A. S. M. il Re Carlo Alberto. Torino, 1836, 3 vols. Rl. fol. and fascienli 31, 32, 33.—BY HIS MAJESTY, THE KING OF SARDINIA.

Natuurkundig Tijdschrift voor Nederlandsch Indië. Jaargang I. Batavia, 1851, 8vo.—BY THE NATUURKUNDIG VEREENIGING IN NEDERLANDSCH INDIE.

Relation des Voyages faits par les Arabes et les Persians dans l'Inde et a la Chine dans le IXe siècle de ère Chretienne Par M. Reinaud.—BY THE AUTHOR.

Géographie d'Abulféda, traduite de l'Arabe en François par M. Reinaud. Paris, 1848, 4to. 2 vols.—BY THE TRANSLATOR.

Invasions des Sarrazins en France et de France en Savoie, en Piémont et dans la Suisse, pendant les 8e 9e et 10e siècles de notre ère. Par M. Reinaud. Paris, 1836, 8vo.—BY THE AUTHOR.

Etudes sur la langue et sur les textes Zeuds par E. Buruouf. Tome I. Paris, 1850, 8vo.—BY THE AUTHOR.

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Observations made at Sun-rise.				Maximum Pressure observed at 9h. 50m.				Observations made at Apparent Noon.									
Date.	Temperature.			Wind.	Aspect of Sky.	Bar. F. to 32°	Temperature.			Wind.	Aspect of Sky.	Bar. F. to 32°	Temperature.			Wind.	Aspect of Sky.
	Of Mer.	Of Air.	W. Bulb.				Of Mer.	Of Air.	W. Bulb.				Of Mer.	Of Air.	W. Bulb.		
1	Inches	°	°			Inches	°	°				Inches	°	°			
2	29.630	81.4	81.3	S.	Cirro-strati	29.708	88.2	89.4	S. S. W.	Cumulo-strati	29.692	91.9	93.3	81.2	S. W.	Cumuli	
3	.681	81.0	81.0	S.	Ditto	.742	88.0	89.4	S. W.	Cumuli	.715	92.2	93.3	82.4	S.	Ditto	
4	.687	80.7	80.6	S.	Cumuli	.748	87.8	89.7	S.	Cumulo-strati	.713	92.6	94.0	82.3	S.	Ditto	
5	.680	81.3	81.3	S.	Cirro-strati	.742	88.3	90.3	S.	Cumuli	.704	92.8	93.8	81.5	S. W.	Cumuli	
6	.669	81.6	81.5	S.	Cumuli	.732	88.8	89.7	S.	Cumulo-strati	.697	93.0	94.2	81.0	S. S. W.	Cumulo-strati	
7	.705	83.0	83.0	S. S. W.	Cirro-cumuli	.740	89.0	90.3	S.	Ditto	.706	93.3	94.2	81.6	S. S. W.	Cumulo-strati	
8	.641	82.8	82.2	S. sharp.	Cirro-strati	.673	89.9	91.3	S. S. W. sp.	Cirro-strati	.639	94.3	96.4	83.4	S. S. W.	Cirro-strati	
9	.644	81.9	82.2	S.	Ditto	.691	88.8	90.0	S. sharp.	Ditto	.673	92.3	93.5	83.6	S. sharp.	Ditto	
10	.643	82.7	83.0	S.	Cirro-cumuli	.684	89.7	91.3	S. sharp.	Clear	.659	93.0	94.6	83.6	S. sharp.	Clear	
11	.597	83.3	83.4	S.	Clear	.662	91.0	93.2	S. S. W. sp.	Ditto	.637	95.5	96.8	85.2	S.	Ditto	
12	.585	84.2	84.3	S. w. shp.	Ditto	.637	90.6	92.0	S. S. W.	Ditto	.598	94.3	95.5	85.7	S.	Ditto	
13	.545	85.0	84.9	S.	Cirro-cumuli	.583	91.0	92.8	S.	Ditto	.552	96.6	99.0	82.0	S.	Ditto	
14	.546	82.8	82.3	S. S. E.	Clear	.614	90.3	93.0	S. W.	Ditto	.589	96.0	99.2	79.4	N. N. W.	Ditto	
15	.635	83.3	82.8	S. S. E.	Foggy	.681	90.3	92.8	S. W.	Ditto	.651	96.2	98.9	78.6	N. W.	Ditto	
16	.651	83.2	83.2	S.	Clear	.693	90.6	93.3	S. S. W.	Ditto	.667	96.8	99.4	83.4	S.	Ditto	
17	.684	83.5	83.4	S.	Cirro-strati	.720	91.2	94.0	S.	Ditto	.690	97.0	99.0	79.2	S.	Ditto	
18	.626	83.6	83.6	S. S. W.	Clear	.695	91.4	93.6	S.	Ditto	.664	95.7	97.4	85.0	S. W.	Ditto	
19	.668	84.4	84.4	S.	Scattered-clouds	.671	91.5	93.6	S.	Ditto	.640	95.0	96.0	85.8	S.	Ditto	
20	.681	83.0	82.9	S.	Clear	.704	91.0	93.2	S.	Ditto	.689	95.2	96.3	85.5	S. S. W.	Ditto	
21	.691	83.0	83.0	E. S. E.	Cloudy	.711	89.7	91.1	S. S. W.	Cumulo-strati	.716	94.0	95.2	84.0	S. S. W.	Ditto	
22	.651	83.2	83.7	S.	Scattered-clouds	.710	88.2	90.0	S. E.	Ditto	.665	93.0	94.0	82.2	S.	Ditto	
23	.659	81.6	81.6	N. E.	Ditto	.724	90.2	92.3	S.	Clear	.699	95.0	96.6	79.4	S.	Clear	
24	.783	83.2	83.5	N. E.	Cloudy	.802	85.0	88.0	S. E.	Cloudy	.751	91.5	93.8	79.8	S. E.	Cumuli	
25	.761	81.6	81.7	S.	Cumuli	.825	89.2	92.0	S.	Cumulo-strati	.781	93.6	96.0	81.6	S. E.	Cumulo-strati	
26	.738	82.0	81.7	S. S. W.	Cirro-strati	.819	90.3	93.0	S. S. W.	Ditto	.775	94.5	96.3	82.2	S.	Ditto	
27	.720	83.4	83.3	S.	Ditto	.752	90.8	93.0	W. S. W.	Clear	.704	95.4	96.8	84.5	S.	Clear	
28	.612	84.3	84.2	S. S. E.	Cldy. to the North	.652	90.4	93.0	S. S. W.	Cirro-strati	.604	97.8	101.2	81.7	N. W.	Cirro-strati	
29	.564	85.5	85.2	S. S. E.	Cirro-strati	.608	93.3	96.2	S. W.	Cirro-cumuli	.554	99.0	101.5	81.7	N. W.	Ditto	
30	.509	85.7	85.6	S. S. E.	Ditto	.536	92.8	94.4	S.	Clear	.510	97.6	99.5	85.3	S. S. W.	Clear	
31	.443	85.3	85.3	S. S. E.	Ditto	.486	93.0	95.3	S. E.	Cirro-strati	.455	98.0	100.2	82.8	S. W.	Cirro-strati	
Mean	29.645	83.1	83.0	....	.....	29.693	90.0	92.1	....	.....	29.661	94.7	96.5	82.6	....	.....

[Meteorological Register, continued.]

Observations made at 2hs. 40m.					Minimum Pressure observed at 4 p. m.					Observations made at Sun-set.					Maximum and Minimum Thermometer.			Rain Gauges.		Moon's Phases		Date.
Bar. red. to 32° F.	Of Mer.	Of Air.	W. Bulb.	Wind.	Aspect of Sky.	Bar. red. to 32° F.	Of Mer.	Of Air.	W. Bulb.	Wind.	Aspect of Sky.	Bar. red. to 32° F.	Of Mer.	Of Air.	W. Bulb.	Max.	Mean.	Min.	Upper.	Lower.	Feet.	Inch.
29.640	94.6	95.0	81.0	S.	Clear	29.605	94.5	94.0	81.4	S.	Clear	29.597	90.2	88.6	80.4	95.4	88.5	81.6	0.05	0.08	1	
.642	95.2	95.9	81.0	S.S.W.	Ditto	.617	95.4	95.5	81.8	S.S.W.	Ditto	.632	90.0	89.3	80.4	96.2	88.9	81.6	0.05		2	
.634	95.3	95.7	82.2	S.	Cumuli	.601	95.5	95.8	81.1	S.	Cumuli	.635	92.0	90.4	79.5	96.4	88.8	81.2	0.05		3	
.619	94.3	94.4	81.3	S.	Cirro-cumuli	.604	93.3	92.5	82.0	S.	Cirro-cumuli	.637	89.6	88.4	79.2	95.4	88.5	81.6	0.05		4	
.646	95.2	95.8	83.4	S.	Cumulo-strati	.629	94.5	94.0	80.4	S.	Cumulo-strati	.649	90.0	88.0	79.7	96.7	89.4	82.0	0.05		5	
.626	95.0	95.8	82.0	S. W.	Ditto	.587	93.3	92.4	82.6	S. shp.	Clear	.607	88.6	87.0	80.4	96.8	89.6	83.4	0.05		6	
.569	96.0	95.7	84.9	S. shp.	Cirro-strati	.559	94.6	93.6	83.3	ssw.sp.	Cirro-strati	.575	89.2	87.8	80.5	98.0	90.7	83.4	0.05		7	
.610	95.0	95.6	83.4	S.	Ditto	.583	95.3	95.3	83.1	S.	Clear	.579	90.6	89.0	80.7	96.5	89.5	82.5	0.05		8	
.676	95.8	95.8	84.5	S.	Clear	.565	95.6	94.9	84.0	S.	Ditto	.570	90.4	88.7	81.9	97.9	91.0	84.0	0.05		9	
.578	96.6	96.4	84.6	S.	Ditto	.556	95.7	95.3	85.0	S.	Ditto	.551	90.2	88.3	82.8	102.5	94.0	85.5	0.05		10	
.525	96.4	97.0	85.2	S.	Ditto	.492	96.7	97.0	85.4	S.	Ditto	.479	92.5	91.0	83.0	103.0	93.3	83.5	0.05		11	
.490	100.5	101.8	78.6	E.	Ditto	.458	101.5	103.0	77.9	W.S.W.	Ditto	.479	95.2	92.7	83.8	102.8	93.0	83.2	0.05		12	
.532	101.3	103.3	76.4	N.	Ditto	.510	102.0	103.0	77.0	N.	Ditto	.529	97.0	95.3	80.0	103.0	93.3	83.5	0.05		13	
.588	101.3	103.0	74.4	E.	Ditto	.541	101.7	102.4	74.2	S. E.	Ditto	.564	96.2	93.9	83.4	102.5	94.0	85.5	0.05		14	
.604	101.2	102.4	83.0	S.	Cumuli	.568	101.0	101.3	79.0	S.S.W.	Cumuli	.590	94.0	92.8	83.6	102.8	93.0	83.2	0.05		15	
.631	100.6	101.7	80.3	S.	Clear	.604	100.4	100.7	79.5	S.S.W.	Clear	.596	94.8	92.8	82.4	101.9	92.8	83.7	0.05		16	
.600	98.0	98.0	85.6	S.	Ditto	.567	97.6	97.0	84.4	S.	Ditto	.534	93.7	92.3	83.4	99.4	91.4	83.4	0.05		17	
.580	97.4	97.8	85.3	S.	Cirro-cumuli	.563	97.0	96.0	85.0	S.	Cirro-cumuli	.574	93.0	92.0	83.0	98.4	91.1	83.8	0.05		18	
.634	97.4	97.4	84.3	S.	Clear	.607	96.8	96.3	84.4	S.	Clear	.609	91.4	89.4	80.8	98.6	91.6	84.5	0.05		19	
.658	96.6	96.6	84.8	S.	Ditto	.624	96.4	96.0	83.5	S.S.W.	Ditto	.644	91.0	89.2	81.4	97.9	90.6	83.2	0.05		20	
.598	95.2	94.8	82.0	S.	Cumuli	.583	95.4	94.9	81.0	S.S.W.	Cumuli	.599	91.4	89.9	81.0	96.8	89.8	82.7	0.05		21	
.629	97.7	97.4	81.4	S.	Cumulo-strati	.579	94.0	93.2	81.4	S.	Cumulo-strati	.634	91.0	89.4	80.4	96.4	89.6	82.8	0.05		22	
.682	97.0	97.4	78.4	S.	Ditto	.666	96.6	96.6	78.3	S.	Cumuli	.681	92.3	90.6	78.6	99.0	90.0	81.0	0.05		23	
.712	96.3	96.3	81.0	S.	Cumulo-strati	.679	96.7	96.3	82.3	S.	Cumulo-strati	.685	93.0	91.3	81.2	96.4	88.5	79.2	0.05		24	
.697	97.4	98.3	81.6	S.	Cumuli	.674	97.3	96.6	81.0	S.	Cirro-strati	.675	93.0	91.4	82.0	98.3	89.8	81.2	0.05		25	
.624	98.0	98.6	84.4	S. E.	Cirro-strati	.585	97.9	97.4	82.4	S.S.W.	Ditto	.604	92.7	91.2	82.0	98.8	90.3	81.7	0.05		26	
.517	104.2	105.9	79.0	N. E.	Cumuli	.488	104.3	104.6	78.0	N. E.	Cumuli	.517	99.5	98.2	82.6	105.4	94.4	83.4	0.05		27	
.493	103.2	104.0	79.4	N. E.	Cirro-strati	.455	104.0	105.0	76.3	w.s.w.	Cirro-strati	.472	97.6	95.0	85.0	105.0	95.1	85.2	0.05		28	
.437	101.0	101.8	84.4	S. E.	Clear	.397	100.4	99.8	84.6	S. E.	Ditto	.451	90.8	87.4	79.9	102.6	94.0	85.4	0.05		29	
.397	100.8	100.0	85.8	S. E.	Cirro-strati	.367	99.2	99.2	85.2	S. E.	Ditto	.383	94.5	93.2	84.0	102.4	93.8	85.2	0.05		30	
29.595	97.7	98.3	82.2	....	.....	29.565	97.4	97.3	81.6	....	.....	29.580	92.4	90.7	81.4	99.1	91.1	83.0	0.05		31	
																			0.05			

Observations made at Sun-rise.										Maximum Pressure observed at 9h. 50m.										Observations made at Apparent Noon.									
Date.	Temperature.			Wind.	Aspect of Sky.	Bar. red. to 32° F.	Temperature.			Wind.	Aspect of Sky.	Bar. red. to 32° F.	Temperature.			Wind.	Aspect of Sky.	Bar. red. to 32° F.	Temperature.			Wind.	Aspect of Sky.						
	Of Mer.	Of Air.	W. Bulb.				Of Mer.	Of Air.	W. Bulb.				Of Mer.	Of Air.	W. Bulb.				Of Mer.	Of Air.	W. Bulb.								
1S.	Inches	85.4	85.5	°	82.3	29.414	S.	Cirro-strati	Inches	92.4	94.5	84.5	S.	Cirro-strati	29.429	Inches	97.3	99.4	°	85.0	E. S. E.	Cirro-strati							
2	.440	86.8	87.0	S. E.	84.2	.493	S. E.	Cloudy	.493	94.4	97.0	84.3	S.	Clear	.471	99.8	102.3	°	84.8	S. E.	Cumuli								
3	.510	80.0	80.5	E.	78.7	.585	E.	Cirro-strati	.585	87.0	89.2	82.0	S.	Cloudy	.562	92.5	94.6	°	83.8	S. E.	Cumulus								
4	.508	83.0	83.1	S.	80.5	.549	S.	Cirro-strati	.549	90.0	92.3	82.9	S. W.	Cumulo-strati	.570	95.5	97.0	°	82.2	S. sharp.	Zenith-clear								
5	.474	84.0	84.1	S. E.	81.7	.495	S. E.	Ditto	.495	90.9	93.0	82.0	E. S. E.	Scattered-clouds	.462	96.0	97.5	°	83.5	E. S. E.	Cumulo-strati								
6	.485	85.7	85.7	S. S. E.	83.0	.495	S. S. E.	Cloudy	.495	90.2	91.9	84.5	E. S. E.	Cloudy	.470	94.5	95.9	°	83.9	E. S. E.	Ditto								
7	.437	85.0	85.0	S. E.	83.0	.503	S. E.	Cirro-strati	.503	90.2	90.8	83.8	N. N. E.	Ditto	.471	85.0	84.9	°	76.0	N. N. E.	Cloudy								
8S.	.448	80.8	81.0	E.	79.2	.499	E.	Ditto	.499	86.8	89.5	82.6	E. S. E.	Ditto	.437	90.8	90.5	°	81.5	E.	Ditto								
9	.429	79.2	79.5	N. N. W.	77.8	.495	N. N. W.	Cloudy	.495	82.2	83.5	80.5	N. W.	Ditto	.483	80.5	83.0	°	79.8	N. W.	Ditto								
10	.401	79.5	80.2	W. N. W.	78.6	.454	W. N. W.	Ditto	.454	83.7	84.7	79.5	W.	Scattered-clouds	.423	87.9	87.9	°	82.5	S. S. W.	Ditto								
11	.433	79.4	80.0	S. S. W.	78.4	.507	S. S. W.	Ditto	.507	85.5	86.9	82.7	S. W.	Cloudy	.499	88.4	89.8	°	83.3	S.	Ditto								
12	.563	78.4	78.7	S.	80.2	.591	S.	Ditto	.591	82.5	84.0	80.2	S.	Ditto	.586	86.1	87.0	°	82.0	E.	Scattered-clouds								
13	.515	80.6	81.5	E. S. E.	80.2	.573	E. S. E.	Ditto	.573	80.9	81.8	79.5	S.	Ditto	.573	85.0	83.0	°	80.5	S. W.	Cloudy								
14	.540	79.7	80.0	S.	78.5	.595	S.	Ditto	.595	80.7	81.6	79.5	S. S. W.	Ditto	.586	79.8	80.5	°	78.9	S.	Ditto								
15S.	.553	81.2	81.8	S.	80.7	.601	S.	Ditto	.601	85.8	86.7	84.0	S. S. W.	Ditto	.585	90.0	91.7	°	84.2	S.	Ditto								
16	.575	82.7	83.2	S. W.	80.5	.650	S. W.	Ditto	.650	85.0	86.0	82.0	S. S. W.	Ditto	.615	89.9	91.0	°	84.0	S. S. W.	Ditto								
17	.571	81.5	82.0	S. W.	78.4	.625	S. W.	Ditto	.625	82.5	82.5	79.8	S. S. W.	Ditto	.575	84.9	84.8	°	80.7	S. S. W.	Cirro-strati								
18	.541	80.9	81.0	S. W.	76.8	.577	S. W.	Ditto	.577	87.0	88.7	81.3	S. W.	Cirro-strati	.577	91.0	92.2	°	82.8	S. S. W.	Cumuli								
19	.590	82.5	82.6	S. S. W.	80.0	.619	S. S. W.	Ditto	.619	88.4	90.4	83.0	S. S. W.	Ditto	.621	93.3	95.3	°	83.6	S. W.	Cumuli								
20	.619	83.0	83.2	S.	81.6	.685	S.	Clear	.685	90.0	91.5	84.3	E.	Cirro-cumuli	.644	93.8	95.0	°	85.2	S.	Ditto								
21	.686	75.8	76.0	E.	74.4	.757	E.	Ditto	.757	84.4	86.4	81.8	S. E.	Cumuli	.698	87.8	88.8	°	85.3	W.	Cloudy								
22S.	.727	77.8	78.0	E.	77.3	.777	E.	Cumuli	.777	85.4	87.3	81.0	S. E.	Cumulo-strati	.739	88.8	87.6	°	81.2	S. E.	Cumulo-strati								
23	.681	79.4	79.3	S. E.	78.0	.726	S. E.	Cirro-strati	.726	86.4	87.9	80.3	S. E.	Ditto	.696	89.2	90.0	°	81.6	S.	Ditto								
24	.570	80.0	79.7	S. E.	78.4	.604	S. E.	Clear	.604	85.5	87.0	80.8	S.	Ditto	.516	90.4	90.7	°	82.5	N. W.	Nimbi								
25	.506	81.2	81.8	S. W.	80.3	.547	S. W.	Cirro-strati	.547	88.2	89.4	83.4	W. N. W.	Cirro-strati	.507	88.0	88.0	°	83.0	W.	Cumulo-strati								
26	.501	81.8	82.3	S. W.	81.0	.525	S. W.	Cloudy	.525	85.0	86.0	82.2	S. N. W.	Ditto	.482	90.0	90.2	°	83.2	W.	Cloudy								
27	.473	83.4	84.8	S. S. W.	83.2	.514	S. S. W.	Ditto	.514	86.7	87.3	83.4	S.	Cloudy	.568	82.4	81.3	°	79.8	S. S. W.	Ditto								
28	.498	80.0	80.0	S. E.	79.0	.581	S. E.	Ditto	.581	85.0	85.4	82.0	S. S. W.	Ditto	.644	89.0	90.2	°	83.2	E. S. E.	Ditto								
29S.	.613	80.6	80.8	S. E.	79.2	.662	S. E.	Cirro-strati	.662	87.8	89.4	82.4	S.	Cumulo-strati	.628	91.0	92.2	°	83.2	S. S. W.	Cumulo-strati								
30	.626	81.9	82.2	S.	80.2	.660	S.	Ditto	.660	88.0	89.2	81.7	S. S. W.	Ditto				°	83.2	S.	Ditto								
Mean	29.531	81.4	81.7	....	79.7	29.580	....	....	29.580	86.6	88.1	82.1	....	....	29.557	89.5	90.2	....	82.3	....	....						

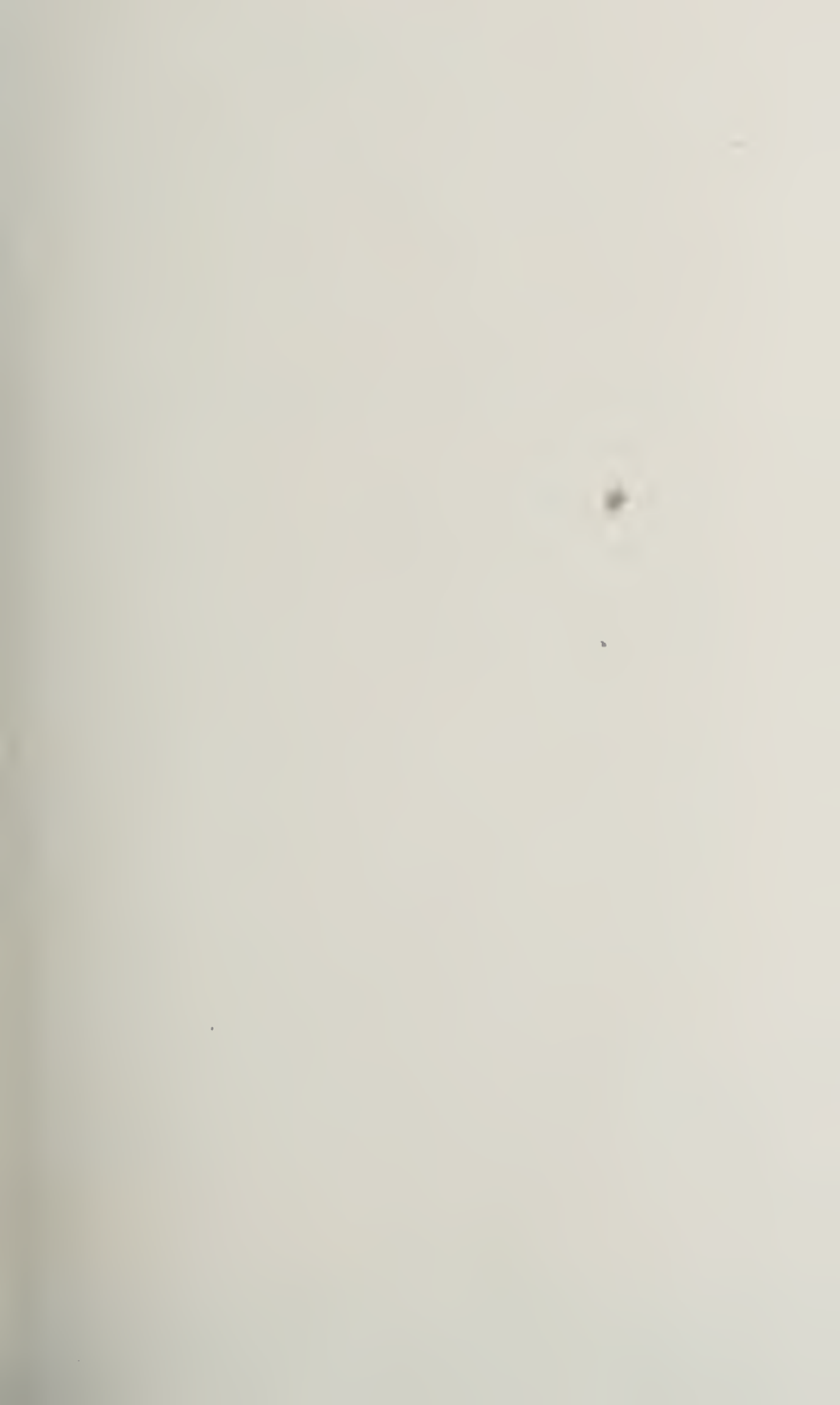
[*Meteorological Register, continued.*]

Observations made at 2hs. 40m.										Minimum Pressure observed at 4 p. m.										Observations made at sun-set.										Maximum and Minimum Thermometer.				Rain Gauges.	
Temperature.					Wind.	Aspect of Sky.	Temperature.				Wind.	Aspect of Sky.	Temperature.				Wind.	Aspect of Sky.	Bar. red. to 32° F.	Max. Min.			Max. Therm. in Sun's rays.	Feet.											
Bar. red. to 32° F.	Of Mer.	Of Air.	W. Bulb.	Bar. red. to 32° F.			Of Mer.	Of Air.	W. Bulb.	Bar. red. to 32° F.			Of Mer.	Of Air.	W. Bulb.	Bar. red. to 32° F.				Of Mer.	Of Air.	W. Bulb.		Max.	Mean.	Min.	Upper. 60.	Lower. 5.							
Inches	°	°	°				Inches	°	°	°				Inches	°	°	°	°	°	°	°	°	Inch.	Feet.											
29.391	100.3	94.5	100.8	86.6	E.S.E.	Cirro-strati	29.369	99.0	98.6	85.8	S. E.	Cirro-strati	29.387	94.4	93.4	84.3	E.S.E.	Cloudy	102.0	93.6	85.2	114.6											
.417	94.5	94.6	86.0	S. E.	Cumulo-strati	.466	93.4	93.3	83.5	S. E.	Nimbi	.442	80.8	79.6	75.3	S.	Ditto	102.6	94.7	86.7	116.7	..	0.48												
.486	96.0	97.8	83.9	E.S.E.	Cumulus	.470	97.0	97.8	82.5	S.	Scattered-clds.	.480	94.2	92.5	81.7	S.	Cirro-strati	97.9	88.6	79.2	114.0	..	..										
.447	97.9	98.0	83.1	S. E.	Scattered-clds.	.430	97.5	97.5	82.5	S. E.	Cldy. to the S.	.421	93.5	92.0	81.4	S. E.	Cloudy to S.	98.9	90.8	82.6	111.9	..	..										
.415	97.8	97.5	83.1	S. E.	Cumulo-strati	.390	96.9	97.5	83.5	S.	Zenith-clear	.410	94.5	93.5	82.0	S.	Cloudy	99.3	91.8	83.7	113.0	..	..										
.392	97.9	98.0	87.0	E.	Ditto	.380	97.0	96.8	85.2	S.	Cumulo-strati	.403	92.5	92.2	82.6	S.	Cirro-strati	98.5	92.0	85.5	110.5	..	..										
.444	84.5	95.0	77.9	E.S.E.	Cloudy	.404	84.0	83.2	77.2	N.N.E.	Cloudy	.389	82.7	82.5	77.6	E.	Cloudy	91.1	87.9	84.7	103.1	..	..										
.444	84.0	81.4	78.5	E.N.E.	Ditto	.405	80.5	80.3	78.0	S. E.	Ditto	.442	73.2	79.5	77.8	N. W.	Ditto	95.5	88.1	80.7	108.7	..	..										
.415	80.3	84.0	81.5	S. E.	Ditto	.406	81.8	79.8	77.5	N. W.	Ditto	.397	79.8	80.0	78.5	N. E.	Ditto	91.2	83.9	76.6	103.0	..	1.36												
.378	88.5	90.8	84.0	S.S.W.	Ditto	.339	90.0	90.5	84.2	S.S.E.	Cumulo-strati	.361	89.0	88.7	82.4	S.	Ditto	91.0	85.1	79.2	101.0	..	0.26												
.442	84.0	81.5	78.8	S.S.E.	Ditto	.433	82.1	81.9	79.1	S.S.E.	Cloudy	.433	87.8	82.0	79.4	E.S.E.	Ditto	89.9	84.6	79.2	103.0	..	0.93												
.513	90.5	90.9	82.0	E.	Scattered-clds.	.511	85.0	82.7	79.5	W.	Ditto	.528	83.4	84.0	80.5	W.	Ditto	91.5	84.5	77.4	108.0	..	0.28												
.518	86.5	85.5	80.6	S.	Cloudy	.494	84.1	82.8	79.0	S.	Ditto	.529	81.8	81.8	80.9	S.	Ditto	94.8	86.7	78.6	111.3	..	0.40												
.522	93.4	92.8	83.0	S. W.	Ditto	.504	80.7	81.5	80.0	S.	Ditto	.538	81.5	81.6	79.7	S.	Cirro-strati	90.0	84.6	79.2	95.4	..	0.15												
.551	89.9	89.7	84.5	S.S.W.	Ditto	.531	85.3	82.0	79.1	S.	Ditto	.547	82.2	87.1	82.5	S.	Ditto	96.5	88.1	79.7	110.3	..	0.67												
.559	84.0	84.1	80.0	S.S.W.	Ditto	.529	89.7	89.2	84.0	S.	Ditto	.535	84.2	85.0	81.7	S.	Ditto	91.9	86.3	80.7	100.3	..	..										
.539	92.4	92.6	84.4	S.	Cumuli	.522	91.4	90.5	84.4	S.	Cumuli	.527	86.9	83.2	81.5	S. W.	Cirro-strati	87.5	84.2	80.9	96.0	..	..										
.580	95.0	94.7	86.2	S.	Ditto	.564	93.0	92.7	83.3	E.S.E.	Cirro-strati	.577	90.0	89.4	83.0	S.	Ditto	93.1	86.7	80.2	102.8	..	..										
.685	78.2	77.0	74.5	N. E.	Raining	.672	77.6	77.3	75.0	S. E.	Raining	.618	77.0	76.0	73.7	S. E.	Cloudy	96.3	89.3	82.2	107.8	..	..										
.705	82.8	82.8	79.4	S.S.E.	Cloudy	.690	82.0	81.0	77.7	S. E.	Ditto	.687	80.0	79.8	77.6	E.	Ditto	95.8	86.0	76.2	109.0	..	1.54												
.682	87.9	86.0	81.0	S.S.E.	Ditto	.657	85.8	86.0	81.4	S. E.	Cumulo-strati	.671	86.8	86.4	82.0	S. E.	Cumulo-strati	90.3	82.8	75.2	106.8	..	0.13												
.621	91.4	92.0	81.7	S.S.E.	Cumulo-strati	.586	92.0	92.0	81.2	S.	Ditto	.591	88.7	87.0	80.2	S. E.	Cirro-strati	92.8	85.7	78.6	110.2	..	0.06												
.522	87.5	87.4	82.7	W.	Ditto	.489	88.2	87.6	82.6	WSW	Ditto	.493	84.5	84.7	80.6	S. W.	Ditto	92.8	85.7	78.6	110.2	..	0.04												
.447	92.0	92.4	86.3	S.	Ditto	.437	92.2	91.8	85.4	S.	Cloudy	.489	85.8	82.1	78.5	S. W.	Ditto	89.4	84.3	79.2	102.3	..	1.12												
.481	83.1	88.2	84.1	S.	Cloudy	.447	87.9	88.0	84.4	S.	Ditto	.466	86.9	86.3	83.5	S.S.W.	Ditto	93.2	87.2	81.2	105.0	..	0.46												
.419	91.2	91.0	84.0	S.	Ditto	.411	89.3	88.6	82.7	S.	Ditto	.473	82.0	81.0	79.3	S. W.	Cloudy	89.5	84.7	79.8	95.6	..	..										
.521	81.0	81.6	78.3	S.S.E.	Ditto	.518	83.0	84.8	80.0	S. E.	Cirro-strati	.521	86.9	87.3	81.2	S. E.	Drizzly	91.9	87.6	83.3	101.8	..	..										
.588	92.0	92.4	82.5	S.	Cumulo-strati	.572	91.7	91.8	82.3	S.	Ditto	.593	88.7	88.0	80.2	S. E.	Cirro-strati	88.7	84.2	79.6	100.7	..	0.09												
.549	92.4	92.7	84.5	S.	Cirro-strati	.526	91.8	91.1	83.2	S.	Ditto	.564	88.5	86.0	79.2	S. W.	Drizzly	93.4	87.5	81.6	105.0	..	0.11												
29.507	89.4	89.5	82.2			29.490	88.1	88.1	81.5			29.501	85.9	85.2	80.3			93.6	87.1	80.5	106.1	7.47	8.39												

Observations made at Sun-rise.				Maximum Pressure observed at 9h. 50m.				Observations made at Apparent Noon.			
Date.	Temperature.			Wind.	Aspect of Sky.	Bar. red. to 32° F.	Temperature.			Wind.	Aspect of Sky.
	Of Mer.	Of Air.	W. Bulb.				Of Mer.	Of Air.	W. Bulb.		
1	Inches	°	°			Inches	°	°			
2	29.569	83.4	83.6	S. S. W.	Cloudy	29.602	87.8	81.8	S.	Cloudy	
3	.569	80.9	81.4	S. S. W.	Ditto	.578	78.4	77.6	S. S. W.	Raining	Drizzly
4	.596	79.3	79.4	S. W.	Drizzly	.640	82.7	84.2	S.	Cloudy	Cloudy
5	.565	80.8	80.9	S. S. W.	Cloudy	.602	85.8	86.7	S. S. W.	Ditto	Ditto
6	.608	80.0	80.3	E. S. E.	Ditto	.648	80.6	81.6	S. S. W.	Ditto	Ditto
7	.722	78.3	78.3	S. S. E.	Clear	.770	85.2	86.3	S.	Cumulo-strati	Cumulo-strati
8	.733	80.2	80.3	S. S. W.	Cirro-strati	.723	85.3	80.3	S. S. W.	Cirro-strati	Cumulo-strati
9	.576	79.0	79.3	S. W.	Ditto	.605	87.0	83.0	S. S. W.	Cumulo-strati	Cumulo-strati
10	.693	79.4	78.8	E. S. E.	Ditto	.645	84.7	80.4	E. N. E.	Cumulo-strati	Cumulo-strati
11	.667	79.8	80.0	S. E.	Ditto	.710	85.6	81.9	S. S. E.	Ditto	Cloudy
12	.604	80.0	80.2	S.	Ditto	.685	85.4	86.4	S. S. E.	Ditto	Cloudy
13	.541	81.2	81.3	S.	Ditto	.620	86.5	82.3	S. S. E.	Ditto	Cumulo-strati
14	.533	81.8	81.9	S.	Ditto	.567	88.0	88.9	S.	Ditto	Ditto
15	.514	81.2	81.3	E.	Ditto	.550	86.2	82.2	S. S. E.	Cumulo-strati	Ditto
16	.485	80.4	80.4	N. E.	Ditto	.503	84.8	85.6	E. S. E.	Ditto	Ditto
17	.459	80.6	80.7	E.	Drizzly	.483	85.0	85.6	N. E.	Cloudy	Cloudy
18	.472	81.0	81.4	E. S. E.	Cloudy	.522	86.2	87.3	E. sharp.	Nimbi	Nimbi
19	.497	81.4	81.5	S. E.	Cirro-strati	.531	84.2	82.8	E.	Cloudy	Cloudy
20	.661	81.0	81.2	S. E.	Cloudy	.737	81.6	79.2	S. S. E.	Raining	Cloudy
21	.661	81.0	81.3	S. S. W.	Ditto	.676	83.6	84.5	S. S. W.	Cloudy	Ditto
22	.551	82.0	82.3	S. S. W.	Ditto	.599	84.0	80.8	S. S. W.	Ditto	Ditto
23	.515	79.0	79.4	S. S. W.	Ditto	.558	79.3	79.4	S. S. W.	Raining	Raining
24	.514	76.8	77.0	S. S. W.	Drizzly	.571	81.2	82.5	S. S. W.	Cloudy	Cloudy
25	.538	78.8	79.0	S.	Cloudy	.575	82.6	78.0	S. S. W.	Cumulo-strati	Cumulo-strati
26	.595	78.7	78.8	S. E.	Ditto	.633	83.0	84.8	S. S. E.	Ditto	Ditto
27	.642	79.0	79.0	E. S. E.	Cirro-strati	.687	82.4	83.4	S. E.	Ditto	Ditto
28	.639	79.4	79.8	S. E.	Ditto	.695	84.2	85.7	S. E.	Ditto	Raining
29	.645	80.2	79.3	S. E.	Cirro-cumuli	.686	85.6	86.6	N. E.	Ditto	Cumulo-strati
30	.639	81.7	82.2	S. W.	Ditto	.643	85.4	86.7	W. N. W.	Ditto	Ditto
31	.539	81.8	80.0	E.	Nimbi	.582	78.9	77.3	N. E.	Cloudy	Cloudy
Mean	29.585	80.3	80.4	....	.....	29.620	84.1	84.9	....	.....	.....
								80.7			
								86.4			
								86.8			
								81.4			

[Meteorological Register, continued.]

Observations made at 2h. 40m.				Minimum Pressure observed at 4 p. m.				Observations made at sun-set.				Maximum and Minimum Thermometer.				Rain Gauges.		Moon's Phases	
Temperature.		Wind.	Aspect of Sky.	Temperature.		Wind.	Aspect of Sky.	Temperature.		Wind.	Aspect of Sky.	Max. and Min.		Therm.	Feet.	Lower.	Feet.	Moon's Phases	
Bar. red. to 32° F.	Of Air.	W. Bulb.		Bar. red. to 32° F.	Of Air.	W. Bulb.		Bar. red. to 32° F.	Of Air.	W. Bulb.		Max.	Mean.						Min.	Upper.	Lower.
29.513	86.8	87.0	83.0	29.503	86.9	87.0	83.2	29.533	81.8	79.5	77.3	S. E.	Drizzly	88.8	86.0	83.2	96.2	1	
.566	79.8	80.6	79.8	.541	81.8	83.0	81.6	.549	82.7	84.0	81.3	S.	Cloudy	84.5	80.6	76.7	89.6	2	
.559	89.4	88.8	83.6	.532	88.4	87.5	83.3	.567	85.2	85.2	82.3	S.	Ditto	90.6	84.8	78.9	100.4	3	
.534	86.3	85.2	81.3	.527	83.8	82.5	80.5	.570	82.8	83.2	80.3	S. W.	Ditto	89.6	85.1	80.6	101.3	4	
.588	84.4	84.7	80.6	.563	81.0	84.8	81.3	.570	82.8	83.2	78.7	S.	Cumuli	85.2	82.2	79.2	101.8	5	
.674	90.3	90.8	82.0	.652	90.8	91.2	82.2	.679	86.7	85.6	80.0	S. W.	Cirro-strati	91.4	84.7	78.0	106.4	6	
.622	90.3	91.0	81.9	.589	91.0	91.7	83.4	.600	88.5	85.6	81.0	S.	Ditto	91.8	85.7	79.6	107.4	7	
.529	90.0	89.0	82.8	.541	82.2	79.6	77.6	.637	81.7	81.6	79.3	S. E.	Cloudy	92.2	86.1	80.0	104.4	8	
.614	82.3	82.9	80.4	.600	83.2	83.4	80.3	.637	81.7	81.6	79.3	S. E.	Ditto	87.8	83.4	78.9	104.4	9	
.643	83.2	81.4	78.4	.629	83.3	84.3	81.8	.668	82.0	81.5	79.4	S.	Raining	89.8	84.5	79.1	104.8	10	
.602	87.2	87.0	81.4	.566	87.6	87.3	81.0	.572	86.2	85.2	80.1	S.	Cumulo-strati	89.0	84.3	79.5	101.3	11	
.521	91.4	92.0	82.6	.490	92.0	91.3	82.0	.508	87.2	86.3	80.2	S.	Cirro-strati	92.3	86.0	79.7	106.6	12	
.486	89.5	87.2	82.3	.458	90.0	88.8	83.6	.487	88.8	87.8	81.8	S.	Ditto	93.6	87.3	81.0	109.2	13	
.486	85.6	85.6	82.0	.446	87.0	87.4	81.7	.460	87.0	86.4	80.3	S.	Raining	93.0	87.1	81.2	110.4	14	
.438	90.3	90.5	82.0	.404	90.0	89.7	82.2	.411	84.9	83.3	79.3	N N E	Cirro-strati	91.9	86.4	80.8	106.4	15	
.428	85.5	84.5	81.4	.418	84.0	84.2	82.0	.426	84.2	83.1	81.2	E. N. E.	Raining	91.1	85.6	80.1	106.8	16	
.414	91.4	92.2	82.0	.399	91.2	90.6	82.0	.446	90.0	89.9	82.3	E.	Cirro-strati	89.1	84.6	80.0	102.5	17	
.475	83.6	83.3	80.9	.472	84.0	84.6	81.2	.526	83.0	82.7	80.2	S. E.	Ditto	92.2	86.2	80.2	107.3	18	
.650	81.5	81.3	79.6	.632	81.3	81.8	80.2	.638	81.8	82.5	81.0	S.	Cloudy	86.0	83.4	80.8	95.8	19	
.578	88.3	88.6	83.7	.575	86.8	84.6	82.2	.589	83.5	83.0	81.7	S. E.	Overcast	84.0	81.9	79.7	86.6	20	
.520	82.8	81.6	79.0	.517	81.8	81.0	79.0	.530	80.2	80.2	74.5	S. W.	Raining	89.7	85.0	80.2	100.0	21	
.479	79.0	79.2	77.4	.456	80.0	80.6	78.0	.498	78.4	78.4	77.3	S. W.	Ditto	85.4	83.0	80.6	89.5	22	
.480	85.8	86.4	81.2	.461	85.8	85.2	81.0	.514	83.2	84.6	80.3	S. W.	Drizzly	86.6	81.6	76.6	100.0	23	
.530	85.3	81.3	80.2	.512	83.0	83.5	80.2	.545	83.3	82.2	78.9	S. W.	Cloudy	87.2	82.9	78.5	102.3	24	
.551	86.3	85.2	80.8	.541	84.9	84.2	80.4	.558	82.5	82.1	78.4	S.	Ditto	88.4	83.3	78.2	103.0	25	
.584	85.5	85.9	82.0	.559	85.0	84.4	81.5	.583	83.5	84.3	79.5	S. W.	Cirro-strati	88.8	83.6	78.4	106.3	26	
.579	89.3	89.4	81.8	.556	89.0	88.5	80.7	.571	87.2	85.6	80.6	S.	Ditto	90.3	84.6	78.9	106.0	27	
.544	89.0	89.8	81.5	.537	90.2	89.4	81.3	.558	88.5	87.9	80.9	S. E.	Cumulo-strati	90.6	85.1	79.6	109.8	28	
.544	91.4	92.0	82.3	.500	91.3	92.6	84.0	.523	90.0	89.5	83.5	N.	Ditto	92.3	87.0	81.7	110.8	29	
.491	81.8	85.0	80.3	.467	84.8	85.8	80.8	.471	84.9	84.0	80.4	S.	Cumuli	85.4	80.9	76.4	95.8	30	
													Cirro-cumuli					31	





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